



ROCK RIVER TOOL INC.

**STANDARD AND SPECIAL
CARBIDE TIPPED CUTTING TOOLS**



MADE IN USA



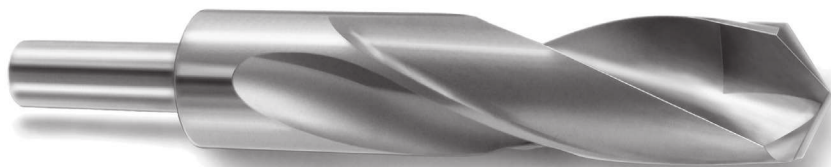
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COMPARISON CHART OF CARBIDE TIPPED

DESCRIPTION - USE	FRAC. PAGE	METRIC PAGE	TOOL TYPE	CJT	CLEVELAND	FULLERTON	CHICAGO LATROBE	MORSE	PTD/DORMER	IMCO
DRILLS -										
Jobbers Length - 118° Regular Point	12	-	2600	120	2727	40 CT	CTD	5330	D444	2850
Jobbers Length - 135° Split Point	12	-	2601	125	—	—	—	—	—	—
Aircraft Extension - 6" Length	13	—	2610	—	—	—	—	—	—	—
Aircraft Extension - 12" Length	13	—	2611	129	—	—	—	—	—	—
Silver & Deming - 118° Regular Point	11	—	2616	163	—	—	—	—	—	—
Core Drill - Straight Shank	8	9	2620	—	—	—	—	5456	—	—
Core Drill - Taper Shank	8	9	2622	410	—	—	—	5454	—	—
CENTERS -										
Morse, B&S, Jarno Taper (Full & Half)	10	—	2592-7	—	790	—	—	5292-7	—	—
REAMERS -										
Stub Length - Straight Flutes	46	—	2430	—	—	50SM	—	5670	—	—
Stub Length - Left Spiral Flutes	46	—	2440	—	4701	50SML	—	5669	—	—
Coolant Fed for Blind Holes - Straight Flutes	14	—	2424	452	—	—	—	—	—	—
Coolant Fed for Through Holes - Straight Flutes	15	—	2426	452A	—	—	—	—	—	—
Coolant Fed for Blind Holes - Right Spiral Flutes	16	—	2413	453	—	—	—	—	—	—
Coolant Fed for Through Holes - Right Spiral Flutes	17	—	2418	453A	—	—	—	—	—	—
Coolant Fed for Through Holes - Left Spiral Flutes	18	—	2428	—	—	—	—	—	—	—
Straight Shank - Straight Flutes	20-21	19	2400	450	4703	50SS	—	5655	—	—
Dowel Pin Sizes	21	—	2476	450	—	—	—	—	—	—
Over & Under Sizes	21	—	2478	450	—	—	—	—	—	—
Decimal Sizes	22-25	—	2400	—	—	—	—	—	—	—
Taper Shank - Straight Flutes	26	27	2402	—	—	50TS	—	5656	—	—
Flute Long Carbide - Straight Shank	28	29	2450	480	—	50SF	—	5659	—	—
Decimal Sizes	30-32	—	2450	—	—	—	—	—	—	—
Shell Reamer - Straight Flutes	33	—	2431	—	—	—	—	5625	—	—
Flute Long Carbide - Taper Shank	34	35	2452	—	—	—	—	5660	—	—
Steel Cutting - Straight Shank & Flutes	36-37	—	2480	—	—	—	—	—	—	—
Steel Cutting - Dowel Pin Sizes	37	—	2486	—	—	—	—	—	—	—
Steel Cutting - Over & Under Sizes	37	—	2488	—	—	—	—	—	—	—
NAS 897 - Flute Long Carbide - Straight Shank	38	—	2458	—	—	—	—	—	—	—
Extended Length - Flute Long Carbide - Straight Shank	39	—	2458EL	—	—	—	—	—	—	—
NAS 897 - Straight Shank & Flutes	40	—	2408	—	4703	—	—	—	—	—
Right Spiral Flute - Straight Shank	41	—	2410	470	4711	50SR	—	5653	—	—
Left Spiral Flute - Straight Shank	41	—	2420	—	4709	50SL	—	5651	—	—
Expansion Reamer - Straight Shank	42	43	2465	490	704	50ES	—	5733	—	—
Expansion Reamer - Taper Shank	44	45	2467	495	716	50ET	—	5734	—	—
Solid Carbide Head Reamer - Straight Flutes	50	—	2800	—	—	1450	—	—	—	9500
Solid Carbide Head Reamer - Right Spiral Flutes	51	—	2810	—	—	1450R	—	—	—	—
Solid Carbide Head Reamer - Left Spiral Flutes	51	—	2820	—	—	1450L	—	—	—	—
Solid Carbide - Straight Flutes - .0005 Inc.	48	—	2804	—	—	—	—	—	—	—
Solid Carbide - Straight Flutes - Frac/Metric	49	49	2804	—	1730	1400	—	5661	—	—
Solid Carbide - Straight Flutes - Wire/Letter	49	—	2804	—	—	1400	—	—	—	—
Solid Carbide - Straight Flutes	52	—	2802	—	1730	1410	—	—	—	—
Solid Carbide - Right Spiral Flutes	52	—	2812	—	1711	1410R	—	—	—	—
Solid Carbide - Left Spiral Flutes	52	—	2822	—	—	1410L	—	—	—	—
Semi-Finished Reamer	47	—	7 Types	—	—	—	—	—	—	—





COMPARISON CHART OF CARBIDE TIPPED

DESCRIPTION - USE	FRAC. PAGE	METRIC PAGE	TOOL TYPE	CLEVELAND	GAY-LEE	PUTNAM	FULLERTON	MORSE	NIAGARA	WHITNEY
COUNTERBORES -										
Replaceable Pilots	47	—	2500	Yes	—	—	—	776	—	—
Three Flutes - Reduced Shank	53	—	2522	—	—	—	—	—	—	—
Four Flutes - Straight Shank	55	—	2512	—	—	—	—	—	—	—
Three/Four Flutes - Straight Shank	55	—	2514	779	—	—	—	5779	—	—
Four Flutes - Taper Shank	56	—	2518	—	—	—	—	—	—	—
Three/Four Flutes - Taper Shank	56	—	2516	—	—	—	—	5780	—	—
Steel Cutting - Straight Shank	57	—	2510	—	—	—	—	—	—	—
Steel Cutting - Taper Shank	57	—	2511	—	—	—	—	—	—	—
Capscrew - Straight Shank - N/F & Cast Iron	54	54	2513	—	—	—	—	—	—	—
Capscrew - Straight Shank - Steel	54	54	2515	—	—	—	—	—	—	—
END MILLS -										
Shell End Mill - Non-Ferrous	58	—	2530	—	—	—	—	5858	4920	—
Shell End Mill - Cast Iron	58	—	2531	—	—	—	—	5859	4900	—
Shell End Mill - Steel	58	—	2532	—	—	—	—	5860	4910	—
15° Right Spiral - Steel	58	—	2350	—	—	HES	60GSS	5960	4820	—
15° Right Spiral	59	—	2375	—	—	HLS	—	5962	4840	—
6° Right Spiral Flutes - Steel	58	—	2308	—	—	—	60RSS	—	—	—
Two Straight Flutes	59	—	2302	—	—	TFEM	60TF	5923	4700	—
Four Straight Flutes	59	—	2304	—	—	EM	60EM	5925	4750	—
6° Right Spiral Flutes	59	—	2306	—	—	RSEM	60RS	5921	—	—
Corner Rounding - Non-Ferrous & Cast Iron	60	—	2740	—	—	—	—	—	—	—
Corner Rounding - Steel	60	—	2741	—	—	—	—	—	—	—
Center Cutting - Cast Iron	60	—	2314	—	—	SKM	60SK	5935	4800	—
Center Cutting - Steel	60	—	2312	—	—	—	60SKS	5936	4780	—
Center Cutting - Non-Ferrous	60	—	2318	—	—	—	60CS	5966	—	—
COUNTERSINKS -										
Single Flute - 60°	61	—	2561	791	—	—	—	—	—	—
Single Flute - 82°	61	—	2581	791	—	—	—	—	—	—
Single Flute - 90°	61	—	2591	—	—	—	—	—	—	—
Single Flute - 100°	61	—	2584	—	—	—	—	—	—	—
Three Flutes - 60°	61	—	2563	793	—	—	—	—	—	—
Three Flutes - 82°	61	—	2583	793	—	—	—	—	—	—
Three Flutes - 90°	61	—	2590	—	—	—	—	—	—	—
Three Flutes - 100°	61	—	2585	—	—	—	—	—	—	—
CUTTERS - SHANK TYPE										
Double Angle - 60° & 90° - Non-Ferrous & Cast Iron	61	—	2746/2748	—	—	—	—	—	—	Yes
Double Angle - 60° & 90° - Steel	61	—	2747/2749	—	—	—	—	—	—	—
Keyseat - Straight Tooth - Non-Ferrous & Cast Iron	62	—	2700	—	—	—	—	—	CB444	120
Keyseat - Staggered Tooth - Non-Ferrous & Cast Iron	63	—	2701	—	—	—	—	—	—	121
Keyseat - Straight Tooth - Steel	64	—	2702	—	—	—	—	—	—	—
Keyseat - Staggered Tooth - Steel	65	—	2703	—	—	—	—	—	—	—
Keyseat - Straight Tooth - Aluminum	66	—	2704	—	—	—	—	—	—	—
T-Slot - Non-Ferrous & Cast Iron	67	—	2720	—	—	—	—	—	—	Yes
T-Slot - Steel	67	—	2721	—	—	—	—	—	—	—
Dovetail - 45° Included & 60° Included Angle - N/F & CI	67	—	2734/2736	—	—	—	—	—	—	Yes
Dovetail - 45° Included & 60° Included Angle - Steel	67	—	2735/2737	—	—	—	—	—	—	—
Chamfer Milling - 45° & 60° - Non-Ferrous & Cast Iron	68	—	2730/2732	—	—	—	—	—	—	Yes
Chamfer Milling - 45° & 60° - Steel	68	—	2731/2733	—	—	—	—	—	—	—
Radius - Non-Ferrous & Cast Iron	68	—	2718	—	—	—	—	—	—	Yes
Radius - Steel	68	—	2719	—	—	—	—	—	—	—
CUTTERS - ARBOR TYPE										
Single Angle - 45° & 60° Right - N/F & CI	69	—	2714/2724	—	—	—	—	—	—	—
Single Angle - 45° & 60° Left - N/F & CI	69	—	2716/2726	—	—	—	—	—	—	—
Double Angle - 45°, 60° & 90° Include Angle - N/F & CI	69	—	2750/2752/2754	—	—	—	—	—	—	—
Side Milling - Staggered Tooth	69	—	2547	—	—	—	—	—	—	—
Side Milling - Non-Ferrous	70	—	2540	—	—	—	—	5861	1630	—
Side Milling - Cast Iron	70	—	2541	—	—	—	—	5862	1590	—
Side Milling - Steel	70	—	2542	—	—	—	—	5863	1550	—
Side Milling - High Temp Alloy	70	—	2543	—	—	—	—	5849	—	—
Slitting Saws - Coarse Tooth - Non-Ferrous	71	—	2550	—	CNF	—	—	5846	4690	—
Slitting Saws - Coarse Tooth - Cast Iron	71	—	2552	—	CCI	—	—	5847	4240	—
Slitting Saws - Coarse Tooth - Steel	71	—	2554	—	CST	—	—	5848	4220	—
Slitting Saws - Coarse Tooth - High Temp Alloy	71	—	2558	—	GSS	—	—	5850	4260	—
Slitting Saws - Standard Tooth - Non-Ferrous	72	—	2551	1361	GPP	—	—	—	—	—
Slitting Saws - Standard Tooth - Cast Iron	72	—	2553	1361	GPP	—	—	—	—	—
Slitting Saws - Standard Tooth - Steel	72	—	2556	1360	STL	—	—	—	—	—
Slitting Saws - Standard Tooth - High Temp Alloy	72	—	2559	—	GSS	—	—	—	—	—
Slitting Saws - Any Width, Radius, or Chamfer - Steel	73-76	—	2556	—	—	—	—	—	—	—
Slitting Saws - Any Width, Radius, or Chamfer - Multi Purpose	77-80	—	2559	—	GSS	—	—	—	—	—
BRAZED SINGLE POINTS										
Single Points	81-82	—	26 Types	—	—	—	—	26 Types	—	—



CARBIDE TIPPED PROBLEM SOLVING GUIDE

**AVOID
PROBLEMS
BY CAREFUL
ORIGINAL
SET-UP**

**MACHINE CONDITION
TOOL CONDITION**

**FEEDS & SPEEDS
COOLANT**

- Tool holder in good condition & secure part holding fixture.
- Use cutting tool recommended for material being machined. Avoid excessive tool overhang.
- Start with feeds & speeds recommended for material being machined.
- Where used, coolant flow must be adequate to avoid intermittent quenching and to flush chips promptly, avoiding the recutting of hardened chips.

DRILLING PROBLEMS	POSSIBLE CAUSES	POSSIBLE SOLUTIONS
1. CHIPPED CUTTING EDGE	Excessive feed Excessive lip relief Vibration	Reduce feed. Reduce lip relief to provide smaller chisel angle. Frequently a worn drill bushing replace.
2. SHORT TOOL LIFE	Thermal cracking carbide Drill dwelling	Maintain adequate coolant flow at all times. Maintain adequate feed at all times.
3. DRILL WALKS OR DRIFTS	Only one lip cutting Unequal lip heights	Regrind with equal lip heights and chisel in center. Regrind with equal lip heights and chisel in center.
4. OVERSIZED HOLES	Worn drill bushing Unequal lip heights	Replace drill bushing. Regrind with equal lip heights and chisel in center.
5. ROUGH FINISH	Excessive lip relief Worn drill bushing Dull cutting edge Inadequate coolant Improper speed & feed	Reduce lip relief to provide smaller chisel angle. Replace drill bushing. Regrind with fine grit diamond wheel. Review type of coolant and maintain adequate flow. Review speed & feed (chart on page 9)
REAMING PROBLEMS	POSSIBLE CAUSES	POSSIBLE SOLUTIONS
1. POOR FINISH	Unequal chamfers Incorrect margins Excessive spindle runout Chatter	Regrind reamer with equal chamfer height. Regrind reamer with narrower margins for reaming higher tensile materials. Use bushing — .0002"/.0003" over reamer diameter. Increase speed and reduce feed rate. Use power feed unless material is hard. Use spiral fluted reamer. Grind secondary lead angle immediately behind 45° chamfer.
2. OVERSIZED HOLES TAPERED HOLES BELL MOUTH HOLES	Insufficient cutting action Misalignment	Specify reamer with positive radial rake to reduce cutting pressure — may produce slightly larger diameter holes. Check fixturing & setup for possible causes; use floating holder if necessary. Consider using precision bushings or piloted reamers. Verify feeds & speeds (see page 9).
3. EXCESSIVE TOOL WEAR	Incorrect feed and/or speed Improper stock removal Excessive reaming pressure	Change pre-ream hole size to leave 2 to 3% of tool diameter. Decrease feed rate (see "Feeds & Speeds" Chart on page 9). See solution for "improper stock removal" in #3.
4. CROOKED HOLES	Misalignment Drill walking or incorrect sharpening	See solution for "misalignment" in #2. Correct drilling operation - reamer will follow drilled hole. Increase 90° included chamfer angle to 120° - 180°.
5. TOOL BREAKAGE	Excessive reaming pressure Misalignment	See solution for "excessive reaming pressure" in #3. See solution for "misalignment" in #2.
MILLING PROBLEMS	POSSIBLE CAUSES	POSSIBLE SOLUTIONS
1. ROUGH FINISH	Dull cutting edge Wrong feeds & speeds	Resharpen to original tool geometry. Increase speed - also try reduced feed.
2. EXCESSIVE CUTTING EDGE WEAR	Wrong feeds & speeds	Increase feed (should always be over .001" per tooth) - especially when machining ductile or free machining materials - Also try reduced speed. Lightly hone cutting edge with fine grit diamond hone.
3. CHIPPED CUTTING EDGE	Rough cutting edge Insufficient coolant Poor chip removal	Increase coolant flow - review type of coolant. Use tool with larger flute space - larger diameter or fewer flutes. Increase coolant flow.
4. CHATTER MARKS	Recutting work hardened chips Vibration Incorrect carbide grade Insufficient machine horsepower Vibration	Increase rigidity of set-up, especially worn tool holders. Change to tougher carbide grade. Use tool with fewer flutes as correct speeds & feeds must be maintained. Consider climb milling. Check setup rigidity. Use larger diameter cutter.
5. GLAZED FINISH	Feed to light Dull cutting edge	Resharpen tool with more clearance. Increase feed.
6. POOR TOOL LIFE	Insufficient clearance Excessive cratering	Resharpen tool to original geometry. Resharpen tool with more clearance. Increase speed or decrease feed. Change to harder grade of carbide.
	Milling abrasive material	Decrease speed and increase feed. Increase coolant flow. Climb milling better than conventional milling. Conventional milling better than climb milling. Reduce speed - rigidity very important. Use larger diameter tool. Prompt resharpening to original geometry will increase total tool life. Increase coolant flow at all times. Climb milling is cooler than conventional milling.
	Milling surface scale Milling hard material Insufficient chip room Delayed resharpening Thermal cracked carbide	



DECIMAL EQUIVALENTS

FRACTIONAL, WIRE, LETTER & METRIC SIZES

FRACTIONAL INCH	WIRE	METRIC mm	DECIMAL INCH
	43	2.3	.0890
		.0906	
	42	2.35	.0925
$\frac{3}{32}$.0935
	41	2.4	.0938
		.0945	
		.0960	
		.0965	
		2.45	
	40	2.5	.0980
		.0984	
	39		.0995
	38		.1015
		2.6	.1024
		.1040	
	37	2.7	.1063
		.1065	
	36		
$\frac{7}{64}$		2.75	.1083
		.1094	
	35		.1100
		.1102	
		2.8	
			.1110
	34		.1130
	33		.1142
		2.9	.1160
	32		
		3.0	.1181
		.1200	
$\frac{1}{8}$	31	3.1	.1220
		.1250	
			.1260
		3.2	.1280
		3.25	.1285
	30		.1299
		3.3	
		3.4	.1339
		.1360	
	29	3.5	.1378
		.1405	
	28		
$\frac{5}{64}$		3.6	.1406
		.1417	
	27		.1440
		.1457	
		3.7	
			.1470
	26	3.75	.1476
		.1495	
	25		.1496
		3.8	
		3.9	.1520
		.1535	
$\frac{5}{32}$	24		.1540
		.1562	
	23		
		4.0	.1570
		.1575	
	22		.1590
	21		.1610
	20		
		4.1	.1614
		.1654	
		.1660	
	19	4.2	.1660
		.1673	
		4.3	.1693
		.1695	
$\frac{1}{16}$	18		.1719
		.1730	
	17		
		4.4	.1732
		.1770	
		4.5	.1772
	16		.1800
	15		

FRACTIONAL INCH	WIRE/LETTER	METRIC mm	DECIMAL INCH
		4.6	.1811
		.1820	
	14	4.7	.1850
	13	4.75	.1870
			.1875
	$\frac{3}{16}$.1890
	12	4.8	.1910
		.1929	
	11	4.9	
			.1935
			.1960
	10	5.0	.1969
	9		.1990
	8		
		5.1	.2008
$\frac{13}{64}$.2010	
		.2031	
	7		.2040
	6		
		5.2	.2047
		.2055	
		.2067	
		.2087	
		5.25	.2087
		5.3	
			.2090
		5.4	.2126
		.2130	
		.2165	
	4	5.5	
	3		
		5.6	.2188
	$\frac{7}{32}$.2205
		.2210	
		.2244	
	2	5.7	
		5.75	.2264
		.2280	
		5.8	.2283
		5.9	.2323
			.2340
	$\frac{15}{64}$.2344
	A		.2362
		6.0	.2380
	B		
		6.1	.2402
		.2420	
		.2441	
	C	6.2	.2460
	D		
		6.25	.2461
$\frac{1}{4}$		6.3	.2480
		.2500	
	E	6.4	.2520
		6.5	.2559
		.2570	
		.2598	
	F	6.6	.2610
	G		
		6.7	.2638
$\frac{17}{64}$.2656	
		.2657	
		.2660	
	H	6.75	
		6.8	.2677
		6.9	.2717
		.2720	
		.2756	
		7.0	
			.2770
		.2795	
	J	7.1	.2810
$\frac{9}{32}$.2812	
	K		
		7.2	.2835
		.2854	
		.2874	
		7.3	.2874
			.2900
	L		

FRACTIONAL INCH	LETTER	METRIC mm	DECIMAL INCH
$\frac{19}{64}$		7.4	.2913
	M		.2950
		7.5	.2953
		.2969	
		7.6	.2992
		.3020	
	N		.3031
		7.7	.3051
		7.75	
$\frac{5}{16}$		7.8	.3071
		.3110	
		.3125	
		8.0	.3150
		8.1	.3160
		.3189	
	O		.3228
		8.2	.3230
			.3248
$\frac{21}{64}$		8.25	.3268
		8.3	.3281
			.3307
		8.4	
			.3320
		8.5	.3346
	Q		.3386
		8.6	.3390
			.3425
$\frac{11}{32}$		8.7	.3438
		.3445	
		8.75	.3445
		8.8	.3465
			.3480
		8.9	.3504
	S		.3543
		9.0	.3580
			.3583
$\frac{23}{64}$		9.1	.3594
		.3622	
		9.2	.3642
		9.25	
		9.3	.3661
		.3680	
	U		.3701
		9.4	.3740
		9.5	
$\frac{3}{8}$.3750
			.3770
		9.6	.3780
	V		.3819
		9.7	
		9.75	.3839
		9.8	.3858
		.3860	
		9.9	.3898
$\frac{25}{64}$.3906
			.3937
		10.0	.3970
			.4040
			.4062
		10.5	.4130
$\frac{13}{32}$.4134
			.4219
			.4331
$\frac{27}{64}$		11.0	.4375
		11.5	.4528
			.4531
$\frac{7}{16}$.4531
			.4688
		12.0	.4724
$\frac{29}{32}$.4844
			.4921
$\frac{15}{32}$			
$\frac{31}{64}$			

FRACTIONAL INCH	METRIC mm	DECIMAL INCH
$\frac{1}{2}$.5000
$\frac{33}{64}$	13.0	.5118
		.5156
	$\frac{17}{32}$	
$\frac{35}{64}$	13.5	.5315
		.5469
		.5512
$\frac{9}{16}$	14.0	.5625
$\frac{37}{64}$	14.5	.5709
		.5781
		.5906
$\frac{19}{32}$	15.0	.5938
$\frac{39}{64}$	15.5	.6094
		.6102
		.6250
$\frac{5}{8}$	16.0	.6299
$\frac{41}{64}$	16.5	.6406
		.6496
		.6562
$\frac{21}{32}$	17.0	.6693
$\frac{43}{64}$	17.5	.6719
		.6875
		.6890
$\frac{11}{16}$	17.5	.7031
$\frac{45}{64}$	18.0	.7807
		.7188
		.7283
$\frac{23}{32}$	18.5	.7283
$\frac{47}{64}$	19.0	.7480
		.7500
		.7656
$\frac{3}{4}$	19.5	.7677
$\frac{49}{64}$	20.0	.7812
		.7874
		.7969
$\frac{51}{64}$	20.5	.8071
$\frac{13}{16}$	21.0	.8125
		.8268
		.8281
$\frac{53}{64}$	21.0	.8438
$\frac{27}{32}$	21.5	.8465
		.8594
		.8661
$\frac{55}{64}$	22.0	.8750
$\frac{7}{8}$	22.5	.8858
		.8906
		.9055
$\frac{57}{64}$	23.0	.9062
$\frac{29}{32}$	23.5	.9219
		.9252
		.9375
$\frac{59}{64}$	24.0	.9449
$\frac{15}{16}$	24.5	.9531
		.9646
		.9688
$\frac{31}{32}$	25.0	.9843
$\frac{63}{64}$	25.5	.9844
		1.0000
		1.0039
1	25.5	1.0156
$\frac{1}{16}$	26.0	1.0236
		1.0312
		1.0433
$\frac{11}{32}$	26.0	1.0433
$\frac{13}{64}$	26.5	1.0469



CARBIDE TIPPED REAMERS TECHNICAL INFORMATION

REAMER BASICS

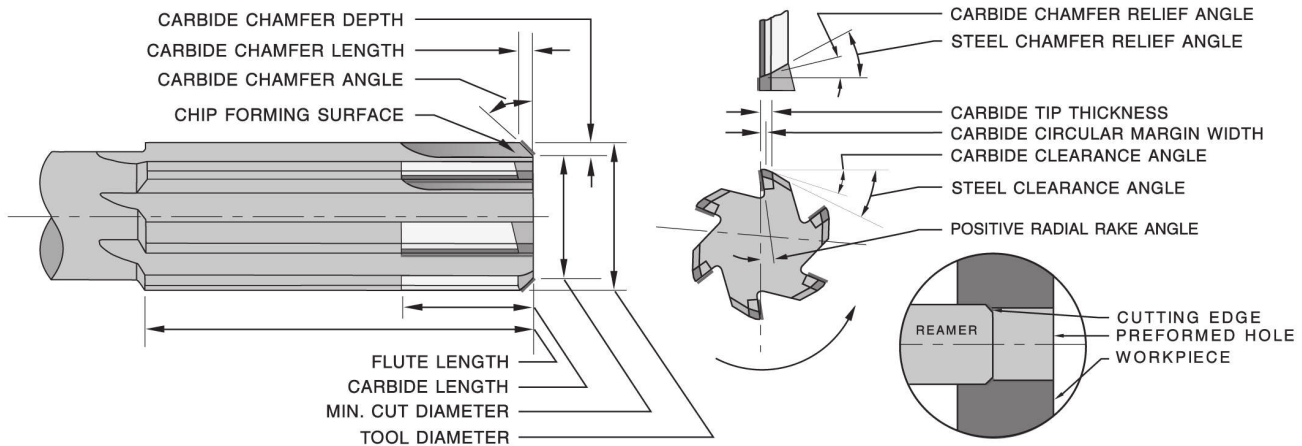
- The reamer is used to finish machine a previously formed hole to an exact diameter with a smooth finish. It should **not** be used to significantly enlarge a hole (max. 5% – depending on material and hardness).
- Carbide tipped reamers are especially appropriate for close tolerance reaming. Because carbide is very highly resistant to wear, the reamer will produce accurate hole size and a smooth finish far longer than high speed steel or cobalt.
- The reamer is an end cutting tool, cutting only on the chamfer's edge at the outside diameter of the preformed hole.

The standard 45° chamfer angle provides effective cutting action for most materials.

- Reamer Types:
 - Multi-Purpose** – Superior performance over high speed steel and cobalt; good in a wide variety of materials
 - Coolant Fed** – Exceptional performance and tool life using material specific reamer technology and coolant fed capabilities; maximizes feeds & speeds

REAMER EXPEDITE FEES: Order must be received by 2:00 PM CST.
Does not apply to types 2431 and 2458EL.
18 pieces max per diameter.
Does NOT require air shipment of the product.

Reamer Diameter	Service	Fee
Up to 1.0000"	24 Hour	\$75.00
Up to 1.0000"	48 Hour	50.00
Over 1.0000"	48 Hour	75.00
Over 1.0000"	72 Hour	50.00



REAMER SPECIFICATIONS

- Geometry and carbide grade appropriate for material being machined
- Carbide tips brazed to tough hardened alloy steel body, except expansion reamers which are not hardened
- Polished flutes for easy chip flow
- ASME/ANSI B94.2; NAS 897; USCTI
- Precision ground cutting edges
- "Taper Shank No." refers to American Standard taper series (formerly Morse taper series) per ASME/ANSI B5.10
- Material specific reamer shanks are ground to next smallest shank diameter listed in NAS 897 if tool diameter is within .005" of shank diameter
- Expansion reamers can be expanded for regrinding as follows:

Tool Diameter	Guaranteed Minimum Expansion
5/16" - 15/32"	.006"
1/2" - 31/32"	.010"
1" - 1 1/2"	.013"
1 1/4" - 2 1/2"	.015"

REAMER TOLERANCES

- Tool diameter tolerance:
 - Multi-purpose & Coolant fed**
Thru 1 1/2" tool diameter: plus .0003", minus .0000"
Over 1 1/2" tool diameter: plus .0004", minus .0000"
 - NAS897**
Thru 1/2" tool diameter: plus .0002", minus .0000"
Over 1/2" tool diameter thru 3/4": plus .0003", minus .0000"
Over 3/4" tool diameter: plus .0004", minus .0000"
- Closer tool diameter tolerance pricing per tool:

Standard Tolerance	Modified to Closer Tolerance		
	.0003"	.0002"	.0001"
.0004"	\$1	\$3	\$5
.0003"	–	\$1	\$3
.0002"	–	–	\$3

- Shank diameter tolerance:
 - General purpose
minus .0005", minus .0015"
 - NAS & Coolant fed
Thru 2 3/32" tool diameter: plus .0000", minus .0010"
Over 2 3/32" tool diameter: plus .0000", minus .0015"



CUTTING SPEEDS & FEEDS

Type of Material		Brinell Hardness 3000 kg	Cutting Speed - SFM Starting Range*		Feed Per Revolution Hole Diameter - Inches					
					1/8	1/4	1/2	3/4	1	1 1/2
Aluminum Alloys		30-150 500 kg	Drill	250-350	.003	.005	.008	.011	.014	.019
			Ream	150-250	.004	.006	.011	.013	.016	.020
Aluminum Bronze Cast		40-175 500 kg	Drill	125-190	.002	.005	.008	.010	.012	.016
			Ream	50-90	.004	.006	.012	.016	.018	.022
Copper Alloys/Bronze Tough		40-200 500 kg	Drill	125-190	.002	.005	.008	.010	.012	.016
			Ream	50-90	.005	.006	.010	.012	.014	.017
Copper Alloys/Brass Free Machining		10-100 Rb	Drill	225-400	.002	.005	.008	.010	.012	.016
			Ream	100-250	.005	.008	.015	.018	.020	.025
Magnesium		50-90 500 kg	Drill	300-400	.003	.005	.007	.009	.013	.016
			Ream	130-390	.005	.010	.015	.017	.020	.025
Plastics			Drill	175-450	.002	.004	.005	.008	.009	.012
			Ream	90-250	.004	.005	.008	.012	.014	.016
Zinc Alloys		80-100	Drill	300-400	.003	.005	.009	.011	.014	.018
			Ream	140-210	.005	.007	.010	.012	.015	.020
Cast Iron -	Gray Soft	120-220	Drill	175-300	.002	.005	.009	.014	.017	.019
			Ream	65-135	.005	.008	.011	.016	.020	.025
	Gray Hard	220-320	Drill	130-225	.002	.004	.007	.010	.013	.018
			Ream	45-70	.004	.006	.009	.012	.014	.020
	Ductile Soft	140-270	Drill	150-225	.002	.004	.008	.012	.014	.018
			Ream	50-90	.004	.005	.010	.014	.017	.023
	Ductile Hard	270-400	Drill	-	-	-	-	-	-	-
			Ream	35-60	.004	.006	.008	.010	.012	.016
Steel -	Low Carbon	85-275	Drill	-	-	-	-	-	-	
			Ream	45-105	-	.010	.015	.020	.025	.030
	Medium Carbon	100-500	Drill	-	-	-	-	-	-	
			Ream	20-105	-	.008	.012	.014	.016	.020
	High Carbon	175-500	Drill	-	-	-	-	-	-	
			Ream	10-100	-	.006	.008	.010	.012	.016
Stainless -	Tool Steel	100-500	Drill	-	-	-	-	-	-	
			Ream	15-85	-	.006	.008	.010	.012	.016
	Free Mach. 300 Series	135-275	Drill	100-150	.002	.004	.006	.008	.010	.014
			Ream	65-100	.004	.006	.008	.009	.010	.011
Stainless -	300	135-375	Drill	-	-	-	-	-	-	
			Ream	40-75	.003	.004	.006	.007	.008	.010
	400	135-325	Drill	-	-	-	-	-	-	
			Ream	40-90	.003	.005	.007	.008	.010	.012
Stainless -	PH	150-440	Drill	-	-	-	-	-	-	
			Ream	35-70	.003	.004	.005	.007	.008	.010
	High Temp. -									
High Temp. -	Nickel Base	140-300	Drill	-	-	-	-	-	-	
			Ream	15-85	.003	.005	.006	.007	.008	.012
	Iron Base	140-300	Drill	-	-	-	-	-	-	
		Ream	15-85	.003	.005	.006	.007	.008	.012	
High Temp. -	Cobalt Base	180-425	Drill	-	-	-	-	-	-	
			Ream	5-30	.003	.004	.006	.007	.008	.010
Titanium		110-380	Drill	-	-	-	-	-	-	
			Ream	35-45	.004	.006	.010	.011	.012	.014

*For high side of hardness range start at low side of cutting speed. Note: Reduce cutting speed and feed when drilling more than 3 diameters deep.



CORE DRILLS – CARBIDE TIPPED

STRAIGHT & TAPER SHANK – FOUR SPIRAL FLUTES



TYPE 2620 – STRAIGHT SHANK – FRACTIONAL SIZES
TYPE 2622 – TAPER SHANK – FRACTIONAL SIZES

BOTH TYPES HAVE

Cutting diameter tolerance plus .000" minus .001"
 Carbide tips brazed to one piece hardened tool steel bodies.
 Larger right spiral flute capacity permits higher feeds and speeds.
 118° included chamfer angle.

OPTIONS:

Intermediate decimal sizes - see priced table below.
 Special point angles.

USE:

Core drills are designed for economically enlarging cored, punched or drilled holes, removing up to 30% of the hole diameter.
 The balanced cutting action of the core drill removes considerably more material than a reamer, often eliminating the need for a final reaming or boring operation.
 For cast iron, non-ferrous metals, some steels, composites, plastics and non-metals.

TOOL DIAMETER		MIN. CUT DIAM.	LENGTH			STRAIGHT SHANK		TAPER SHANK		BOTH TYPES PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL		CARBIDE TIP	FLUTE	OVER-ALL	SHANK DIAM.	EDP NO.	TAPER	EDP NO.			1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14**
3/8*	.3750	.262	5/8	3 1/2	6 3/4	3/8	262012	1	262212	\$124.85	0.3471 - 0.3780	\$170.45	\$147.50	\$139.90	\$136.25	\$132.30	\$129.35
13/32*	.4062	.284	5/8	3 5/8	7	13/32	262013	1	262213	124.85	0.3781 - 0.4090	170.45	147.50	139.90	136.25	132.30	129.35
7/16*	.4375	.306	3/4	3 7/8	7 1/4	7/16	262014	1	262214	124.85	0.4091 - 0.4410	170.45	147.50	139.90	136.25	132.30	129.35
15/32*	.4688	.328	3/4	4 1/8	7 1/2	15/32	262015	1	262215	124.85	0.4411 - 0.4720	170.45	147.50	139.90	136.25	132.30	129.35
1/2	.5000	.350	3/4	4 3/8	8 1/4	1/2	262016	2	262216	124.85	0.4721 - 0.5030	170.45	147.50	139.90	136.25	132.30	129.35
17/32	.5312	.372	3/4	4 3/8	8 1/4	17/32	262017	2	262217	125.30	0.5031 - 0.5340	171.05	148.15	140.45	136.90	132.95	129.75
9/16	.5625	.394	3/4	4 3/8	8 1/4	9/16	262018	2	262218	125.30	0.5341 - 0.5660	171.05	148.15	140.45	136.90	132.95	129.75
19/32	.5938	.416	3/4	4 3/8	8 1/4	19/32	262019	2	262219	131.60	0.5661 - 0.5970	177.25	154.35	146.80	143.10	139.15	136.15
5/8	.6250	.438	3/4	4 3/8	8 1/4	5/8	262020	2	262220	131.60	0.5971 - 0.6280	177.25	154.35	146.80	143.10	139.15	136.15
21/32	.6562	.459	3/4	4 3/8	8 1/4	21/32	262021	2	262221	133.10	0.6281 - 0.6590	178.80	155.95	148.35	144.60	140.85	137.70
11/16	.6875	.481	7/8	4 3/8	8 1/4	11/16	262022	2	262222	134.35	0.6591 - 0.6910	180.00	157.20	149.40	145.80	141.90	138.80
23/32	.7188	.503	7/8	4 3/8	8 1/4	23/32	262023	2	262223	134.35	0.6911 - 0.7220	180.00	157.20	149.40	145.80	141.90	138.80
3/4	.7500	.525	7/8	4 3/8	8 1/4	3/4	262024	2	262224	134.35	0.7221 - 0.7530	180.00	157.20	149.40	145.80	141.90	138.80
25/32	.7812	.547	7/8	4 3/8	8 1/4	25/32	262025	2	262225	137.25	0.7531 - 0.7840	182.85	160.10	152.40	148.75	144.90	141.80
13/16	.8125	.569	7/8	4 7/8	9 1/2	13/16	262026	3	262226	141.10	0.7841 - 0.8160	186.80	164.00	156.20	152.70	148.60	145.70
27/32	.8438	.591	7/8	4 7/8	9 1/2	27/32	262027	3	262227	148.60	0.8161 - 0.8470	194.30	171.50	163.80	160.15	156.20	153.15
7/8	.8750	.612	7/8	4 7/8	9 1/2	7/8	262028	3	262228	148.60	0.8471 - 0.8780	194.30	171.50	163.80	160.15	156.20	153.15
29/32	.9062	.634	7/8	4 7/8	9 1/2	29/32	262029	3	262229	149.50	0.8781 - 0.9090	195.20	172.40	164.70	161.05	157.25	154.05
15/16	.9375	.656	7/8	4 7/8	9 1/2	15/16	262030	3	262230	149.50	0.9091 - 0.9410	195.20	172.40	164.70	161.05	157.25	154.05
31/32	.9688	.678	7/8	4 7/8	9 1/2	31/32	262031	3	262231	155.20	0.9411 - 0.9720	200.70	177.85	170.25	166.70	162.65	159.65
1	1.0000	.700	7/8	4 7/8	9 1/2	1	262032	3	262232	158.05	0.9721 - 1.0030	203.70	180.85	173.05	169.50	165.55	162.50
1 1/32	1.0312	.722	7/8	4 7/8	9 1/2	1 1/32	262033	3	262233	159.40	1.0031 - 1.0340	204.95	182.00	174.50	170.75	166.95	163.80
1 1/16	1.0625	.744	7/8	4 7/8	9 1/2	1 1/16	262034	3	262234	161.55	1.0341 - 1.0660	207.25	184.30	176.70	173.00	169.05	166.05
1 3/32	1.0938	.766	1	4 7/8	10 1/2	1 3/32	262035	4	262235	188.20	1.0661 - 1.0970	233.75	210.95	203.30	199.65	195.75	192.65
1 1/8	1.1250	.787	1	4 7/8	10 1/2	1 1/8	262036	4	262236	188.20	1.0971 - 1.1280	233.75	210.95	203.30	199.65	195.75	192.65
1 9/32	1.1562	.809	1	4 7/8	10 1/2	1 9/32	262037	4	262237	205.40	1.1281 - 1.1590	251.05	228.25	220.60	216.95	213.05	209.90
1 3/16	1.1875	.831	1	4 7/8	10 1/2	1 3/16	262038	4	262238	211.40	1.1591 - 1.1905	257.00	234.30	226.45	222.90	219.00	215.95
1 7/32	1.2188	.853	1	4 7/8	10 1/2	1 7/32	262039	4	262239	212.15	1.1906 - 1.2220	257.80	234.95	227.40	223.65	219.65	216.65
1 1/4	1.2500	.875	1	4 7/8	10 1/2	1 1/4	262040	4	262240	213.05	1.2221 - 1.2530	258.70	235.80	228.20	224.50	220.60	217.45
1 9/32	1.2812	.897	1	4 7/8	10 1/2	1 9/32	262041	4	262241	228.25	1.2531 - 1.2840	273.90	250.95	243.35	239.65	235.80	232.65
1 5/16	1.3125	.919	1	4 7/8	10 1/2	1 5/16	262042	4	262242	234.55	1.2841 - 1.3150	280.25	257.40	249.65	246.10	242.15	239.00
1 11/32	1.3438	.940	1	4 7/8	10 1/2	1 11/32	262043	4	262243	239.50	1.3151 - 1.3470	285.15	262.30	254.60	250.95	247.15	243.90
1 3/8	1.3750	.962	1	4 7/8	10 1/2	1 3/8	262044	4	262244	245.35	1.3471 - 1.3780	290.95	268.10	260.40	256.80	252.90	249.70
1 13/32	1.4062	.984	1	4 7/8	10 1/2	1 13/32	262045	4	262245	250.85	1.3781 - 1.4090	296.55	273.75	266.00	262.35	258.45	255.40
1 7/16	1.4375	1.006	1	4 7/8	10 1/2	1 7/16	262046	4	262246	258.20	1.4091 - 1.4410	303.90	281.10	273.35	269.75	265.85	262.80
1 15/32	1.4688	1.025	1	4 7/8	10 1/2	1 15/32	262047	4	262247	265.90	1.4411 - 1.4720	311.45	288.70	281.10	277.40	273.40	270.45
1 1/2	1.5000	1.050	1	4 7/8	10 1/2	1 1/2	262048	4	262248	271.70	1.4721 - 1.5030	317.30	294.35	286.80	283.10	279.15	276.20

*3 flutes

**Quantities of 15 or more: price of fractional size in same size range.



CORE DRILLS – CARBIDE TIPPED – METRIC DIAMETER

STRAIGHT & TAPER SHANK – FOUR SPIRAL FLUTES

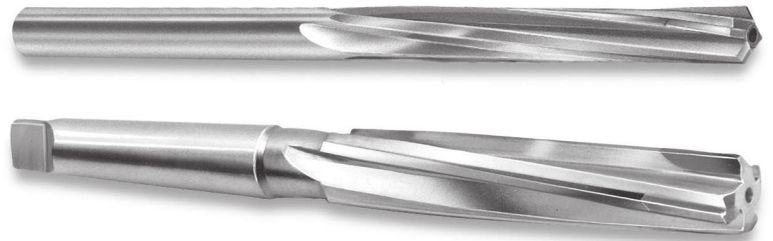
TYPE 2620 – STRAIGHT SHANK
TYPE 2622 – TAPER SHANK

BOTH TYPES HAVE

Cutting diameter tolerance plus .000" minus .001".
 Carbide tips brazed to one piece hardened tool steel bodies.
 Larger right spiral flute capacity permits higher feeds and speeds.
 118° included chamfer angle.

OPTIONS:

Intermediate metric sizes - see priced table below.
 Special point angles.



USE:

Core drills are designed for economically enlarging cored, punched or drilled holes, removing up to 30% of the hole diameter. The balanced cutting action of the core drill removes considerably more material than a reamer, often eliminating the need for a final reaming or boring operation. For cast iron, non-ferrous metals, some steels, composites, plastics and non-metals.

NOTE: Tool diameter in millimeters (mm); all other dimensions in inches.

TOOL DIAMETER		DIMENSIONS				TYPE 2620		TYPE 2622		BOTH TYPES METRIC PRICE	FINISHED TO MODIFIED TOOL DIAMETER							
		MIN. CUT DIAM.	LENGTH			SHANK DIAM.	METRIC EDP NO.	MORSE TAPER	METRIC EDP NO.		MODIFIED DECIMAL RANGE (mm)	PRICE EACH BASED ON QUANTITY ORDERED						
mm	INCH		CARBIDE TIP	FLUTE	OVER-ALL					1 PC.		2 PC.	3 PC.	4 PC.	5-7	8-14	OVER 14	
9.0*	.3543	.262	5/8	3 1/2	6 3/4	3/8	2620090	1	2622090	\$139.90	8.815-9.601	\$174.25	\$151.50	\$143.70	\$140.00	\$136.25	\$133.05	\$128.65
10.0*	.3937	.284	5/8	3 5/8	7	13/32	2620100	1	2622100	139.90	9.602-10.389	174.25	151.50	143.70	140.00	136.25	133.05	128.65
11.0*	.4331	.306	3/4	3 7/8	7 1/4	7/16	2620110	1	2622110	139.90	10.390-11.201	174.25	151.50	143.70	140.00	136.25	133.05	128.65
-	-	.328	3/4	4 1/8	7 1/2	15/32	2620119	1	2622119	-	11.202-11.989	174.25	151.50	143.70	140.00	136.25	133.05	128.65
12.0	.4724	.350	3/4	4 3/8	8 1/4	1/2	2620120	2	2622120	139.90	11.990-12.776	174.25	151.50	143.70	140.00	136.25	133.05	128.65
13.0	.5118	.372	3/4	4 3/8	8 1/4	17/32	2620130	2	2622130	140.45	12.777-13.564	174.70	152.10	144.40	140.75	136.90	133.70	129.35
14.0	.5512	.394	3/4	4 3/8	8 1/4	9/16	2620140	2	2622140	140.45	13.565-14.376	174.70	152.10	144.40	140.75	136.90	133.70	129.35
15.0	.5906	.416	3/4	4 3/8	8 1/4	19/32	2620150	2	2622150	146.80	14.377-15.164	181.10	158.30	150.65	146.95	143.10	139.90	135.50
-	-	.438	3/4	4 3/8	8 1/4	5/8	2620159	2	2622159	-	15.165-15.951	181.10	158.30	150.65	146.95	143.10	139.90	135.50
16.0	.6299	.459	3/4	4 3/8	8 1/4	21/32	2620160	2	2622160	148.35	15.952-16.739	182.70	159.85	152.20	148.50	144.60	141.35	137.15
17.0	.6693	.481	7/8	4 3/8	8 1/4	11/16	2620170	2	2622170	149.40	16.740-17.551	183.85	160.95	153.25	149.50	145.80	142.55	138.20
18.0	.7087	.503	7/8	4 3/8	8 1/4	23/32	2620180	2	2622180	149.40	17.552-18.339	183.85	160.95	153.25	149.50	145.80	142.55	138.20
19.0	.7480	.525	7/8	4 3/8	8 1/4	3/4	2620190	2	2622190	149.40	18.340-19.126	183.85	160.95	153.25	149.50	145.80	142.55	138.20
-	-	.547	7/8	4 3/8	8 1/4	25/32	2620199	2	2622199	-	19.127-19.914	186.80	164.10	156.50	152.70	148.75	145.70	141.20
20.0	.7874	.569	7/8	4 7/8	9 1/2	13/16	2620200	3	2622200	156.20	19.915-20.726	190.60	167.85	160.15	156.55	152.70	149.40	145.05
21.0	.8268	.591	7/8	4 7/8	9 1/2	27/32	2620210	3	2622210	163.80	20.727-21.514	198.20	175.35	167.75	164.10	160.15	157.00	152.70
22.0	.8661	.612	7/8	4 7/8	9 1/2	7/8	2620220	3	2622220	163.80	21.515-22.301	198.20	175.35	167.75	164.10	160.15	157.00	152.70
23.0	.9055	.634	7/8	4 7/8	9 1/2	29/32	2620230	3	2622230	164.70	22.302-23.089	199.05	176.35	168.75	164.85	161.05	158.00	153.55
-	-	.656	7/8	4 7/8	9 1/2	15/16	2620239	3	2622239	-	23.090-23.901	199.05	176.35	168.75	164.85	161.05	158.00	153.55
24.0	.9449	.678	7/8	4 7/8	9 1/2	31/32	2620240	3	2622240	170.25	23.902-24.689	204.60	181.80	174.20	170.45	166.70	163.35	159.00
25.0	.9843	.700	7/8	4 7/8	9 1/2	1	2620250	3	2622250	173.05	24.690-25.476	207.50	184.75	177.10	173.30	169.50	166.35	161.95
26.0	1.0236	.722	7/8	4 7/8	9 1/2	1 1/32	2620260	3	2622260	174.50	25.477-26.264	208.75	186.05	178.40	174.60	170.75	167.70	163.20
27.0	1.0630	.744	7/8	4 7/8	9 1/2	1 1/16	2620270	3	2622270	176.70	26.265-27.076	211.15	188.25	180.55	176.90	173.00	169.90	165.50
-	-	.766	1	4 7/8	10 1/2	1 3/32	2620279	4	2622279	-	27.077-27.864	237.65	214.85	207.25	203.40	199.65	196.45	192.15
28.0	1.1024	.787	1	4 7/8	10 1/2	1 1/8	2620280	4	2622280	203.30	27.865-28.651	237.65	214.85	207.25	203.40	199.65	196.45	192.15
29.0	1.1417	.809	1	4 7/8	10 1/2	1 5/32	2620290	4	2622290	220.60	28.652-29.439	254.90	232.20	224.50	220.80	216.95	213.70	209.25
30.0	1.1811	.831	1	4 7/8	10 1/2	1 3/16	2620300	4	2622300	226.45	29.440-30.239	260.90	238.05	230.55	226.60	222.90	219.65	215.35
31.0	1.2205	.853	1	4 7/8	10 1/2	1 7/32	2620310	4	2622310	227.40	30.240-31.039	261.65	238.80	231.25	227.50	223.65	220.35	216.05
-	-	.875	1	4 7/8	10 1/2	1 1/4	2620319	4	2622319	-	31.040-31.826	262.40	239.65	232.15	228.35	224.50	221.30	216.95
32.0	1.2598	.897	1	4 7/8	10 1/2	1 9/32	2620320	4	2622320	243.35	31.827-32.614	277.80	254.90	247.30	243.60	239.65	236.50	232.20
33.0	1.2992	.919	1	4 7/8	10 1/2	1 5/16	2620330	4	2622330	249.65	32.615-33.401	284.00	261.15	253.55	249.80	246.10	242.95	238.55
34.0	1.3386	.940	1	4 7/8	10 1/2	1 11/32	2620340	4	2622340	254.60	33.402-34.214	289.10	266.30	258.60	254.85	250.95	247.85	243.45
35.0	1.3780	.962	1	4 7/8	10 1/2	1 3/8	2620350	4	2622350	260.40	34.215-35.001	294.90	272.00	264.40	260.60	256.80	253.55	249.30
-	-	.984	1	4 7/8	10 1/2	1 13/32	2620359	4	2622359	-	35.002-35.789	300.35	277.70	269.85	266.30	262.35	259.25	254.85
36.0	1.4173	1.006	1	4 7/8	10 1/2	1 7/16	2620360	4	2622360	273.35	35.790-36.601	307.75	284.95	277.35	273.50	269.75	266.60	262.25
37.0	1.4567	1.025	1	4 7/8	10 1/2	1 15/32	2620370	4	2622370	281.10	36.602-37.389	315.40	292.65	284.95	281.30	277.40	274.20	269.80
38.0	1.4961	1.050	1	4 7/8	10 1/2	1 1/2	2620380	4	2622380	286.80	37.390-38.176	321.05	298.35	290.70	286.90	283.10	279.95	275.50

*3 flutes



CENTERS – CARBIDE TIPPED

MORSE – BROWN & SHARPE – JARNO TAPERS



FULL CENTERS

TYPE 2595 MORSE TAPER – FULL CENTER

TYPE 2596 BROWN & SHARPE TAPER – FULL CENTER

TYPE 2597 JARNO TAPER – FULL CENTER

Carbide tips brazed to alloy steel bodies.
Center precision ground to 60° included angle.
Center concentric to precision ground taper.

HALF CENTERS

TYPE 2592 MORSE TAPER – HALF CENTER

TYPE 2593 BROWN & SHARPE TAPER – HALF CENTER

TYPE 2594 JARNO TAPER – HALF CENTER

Half centers provide clearance for the grinding wheel or turning tool when machining a small diameter near the end of a part.



USE:

Carbide tip centers hold point angle and overall concentricity so parts can be held securely and accurately for precision turning and grinding.
When operating at high rates of speed carbide tipped centers will not wear as rapidly, avoiding burning or scoring of the part's center holes.

MORSE TAPER NO.	OVERALL LENGTH	TYPE 2595 - FULL CENTER - MORSE TAPER				TYPE 2592 - HALF CENTER - MORSE TAPER					
		CARBIDE TIP LENGTH	CARBIDE TIP DIAMETER	EDP NO.	PRICE	CARBIDE TIP LENGTH	CARBIDE TIP DIAMETER	UNDERCUT LENGTH	HEIGHT ABOVE CENTER	EDP NO.	PRICE
1	3 5/16	7/16	1/4	259501	\$49.65	7/16	1/4	1	9/64	259201	\$91.50
2	4 3/16	9/16	5/16	259502	59.15	9/16	5/16	1 3/8	11/64	259202	113.30
3	5 1/4	7/8	1/2	259503	108.40	11/16	3/8	1 11/16	13/64	259203	171.20
4	6 3/4	7/8	1/2	259504	164.80	7/8	1/2	2 1/4	17/64	259204	250.30
5	8 1/2	1 1/16	5/8	259505	269.65	1 1/16	5/8	2 3/4	21/64	259205	418.40

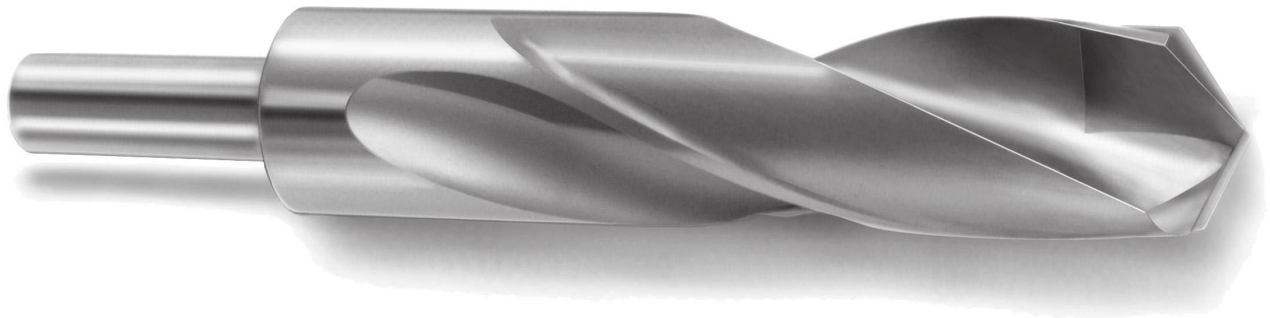
BROWN & SHARPE TAPER NO.	OVERALL LENGTH	TYPE 2596 - FULL CENTER - B & S TAPER				TYPE 2593 - HALF CENTER - B & S TAPER					
		CARBIDE TIP LENGTH	CARBIDE TIP DIAMETER	EDP NO.	PRICE	CARBIDE TIP LENGTH	CARBIDE TIP DIAMETER	UNDERCUT LENGTH	HEIGHT ABOVE CENTER	EDP NO.	PRICE
7	4 1/2	9/16	5/16	259607	\$75.85	9/16	5/16	1 1/8	11/64	259307	\$128.45
8	5 11/32	11/16	3/8	259608	106.40	9/16	5/16	1 5/16	11/64	259308	168.65
9	6	7/8	1/2	259609	134.95	11/16	3/8	1 1/2	13/64	259309	200.90
10	8 17/32	7/8	1/2	259610	192.85	7/8	1/2	2 1/4	17/64	259310	281.35
11	10 1/8	1 1/16	5/8	259611	256.20	1 1/16	5/8	2 1/2	3/8	259311	386.45

JARNO TAPER NO.	OVERALL LENGTH	TYPE 2597 - FULL CENTER - JARNO TAPER				TYPE 2594 - HALF CENTER - JARNO TAPER					
		CARBIDE TIP LENGTH	CARBIDE TIP DIAMETER	EDP NO.	PRICE	CARBIDE TIP LENGTH	CARBIDE TIP DIAMETER	UNDERCUT LENGTH	HEIGHT ABOVE CENTER	EDP NO.	PRICE
4	3	7/16	1/4	259704	\$54.25	7/16	1/4	25/32	9/64	259404	\$99.80
5	3 5/8	7/16	1/4	259705	60.00	7/16	1/4	15/16	9/64	259405	110.55
6	4 1/2	9/16	5/16	259706	74.10	9/16	5/16	1 1/8	11/64	259406	123.20
7	5 1/4	11/16	3/8	259707	96.00	11/16	3/8	1 3/16	13/64	259407	161.40
8	6	7/8	1/2	259708	124.10	7/8	1/2	1 3/8	17/64	259408	199.45
9	6 3/4	7/8	1/2	259709	134.70	7/8	1/2	1 5/8	17/64	259409	224.70
10	7 1/2	7/8	1/2	259710	171.20	7/8	1/2	2	17/64	259410	266.00
11	8 1/4	7/8	1/2	259711	192.65	7/8	1/2	2	17/64	259411	294.40
12	9	1 1/16	5/8	259712	213.10	1 1/16	5/8	2 1/4	21/64	259412	331.70



SILVER & DEMING DRILLS

CARBIDE TIPPED - 118° STANDARD POINT



TYPE 2616 - 118° POINT

Shank: 1/2" diameter, 2 1/4" long.
 118° point - 6" overall length.
 Heavy duty quality construction.

USE:

Allows larger tool diameter drilling using a 1/2" drill chuck.

TOOL DIAMETER		LENGTH		118° POINT	
FRAC.	DECIMAL	FLUTE	OVER-ALL	TYPE 2616 EDP NO.	PRICE
1/2	.5000	3 1/8	6	261632	\$77.50
17/32	.5312	3 1/8	6	261634	113.35
9/16	.5625	3 1/8	6	261636	117.50
19/32	.5938	3 1/8	6	261638	122.20
5/8	.6250	3 1/8	6	261640	135.85
21/32	.6562	3 1/8	6	261642	147.25
11/16	.6875	3 1/8	6	261644	152.95
23/32	.7188	3 1/8	6	261646	158.70
3/4	.7500	3 1/8	6	261648	166.30
25/32	.7812	3 1/8	6	261650	183.30
13/16	.8125	3 1/8	6	261652	183.80
27/32	.8438	3 1/8	6	261654	183.80
7/8	.8750	3 1/8	6	261656	191.25

TOOL DIAMETER		LENGTH		118° POINT	
FRAC.	DECIMAL	FLUTE	OVER-ALL	TYPE 2616 EDP NO.	PRICE
29/32	.9062	3 1/8	6	261658	\$195.80
15/16	.9375	3 1/8	6	261660	197.80
31/32	.9688	3 1/8	6	261662	204.45
1	1.0000	3 1/8	6	261664	208.85
1 1/32	1.0312	3 1/8	6	261666	201.55
1 1/16	1.0625	3 1/8	6	261668	218.65
1 1/8	1.0938	3 1/8	6	261670	223.80
1 1/4	1.1250	3 1/8	6	261672	228.25
1 5/32	1.1562	3 1/8	6	261674	277.00
1 3/16	1.1875	3 1/8	6	261676	282.00
1 7/32	1.2188	3 1/8	6	261678	296.05
1 1/2	1.2500	3 1/8	6	261680	270.35



TWIST DRILLS - CARBIDE TIPPED

JOBBERS LENGTH



TYPE 2600 - JOBBERS LENGTH - 118° POINT

For drilling cast iron, non-ferrous metals and non-metals.

TYPE 2601 - JOBBERS LENGTH - 135° SPLIT POINT

For drilling abrasive and tough materials.

Carbide tips brazed to hardened tool steel bodies.

Smooth flutes for effective chip flow. Precision ground to ensure concentricity of tip & body.

DRILL TOLERANCES:

Drill Diameter	Diameter		Included Angle		Lip Height T.I.V.
	Plus	Minus	Plus	Minus	
Thru 1/8"	.0000"	.0005"	5°	5°	.0020"
Over 1/8" thru 1/4"	.0000"	.0007"	5°	5°	.0030"
Over 1/4" thru 1/2"	.0000"	.0010"	5°	5°	.0040"
Over 1/2" thru 1"	.0000"	.0012"	3°	3°	.0050"

Thru 1/2" Dia. Overall Length Tolerance +1/4", -1/8"

TOOL DIAMETER			LENGTH		118° POINT		135° POINT	
FRAC.	DEC.	WIRE LETTER	FLUTE	OVER-ALL	TYPE 2600 EDP NO.	PRICE	TYPE 2601 EDP NO.	PRICE
	.0980	40*	1	2	260240	\$26.25	-	-
	.0995	39*	1 1/4	2 1/4	260239	26.25	-	-
	.1015	38*	1 1/4	2 1/4	260238	26.25	-	-
	.1040	37*	1 1/4	2 1/4	260237	26.25	-	-
7/64*	.1065	36*	1 1/4	2 1/4	260236	26.25	-	-
	.1094		1 1/4	2 1/4	260007	26.25	-	-
	.1100	35*	1 1/4	2 1/4	260235	26.25	-	-
	.1110	34*	1 1/4	2 1/4	260234	26.25	-	-
1/8	.1130	33*	1 1/4	2 1/4	260233	26.25	-	-
	.1160	32	1 5/8	2 3/4	260232	21.20	-	-
	.1200	31	1 5/8	2 3/4	260231	19.20	-	-
	.1250		1 5/8	2 3/4	260008	19.65	260108	\$22.90
3/64	.1285	30	1 5/8	2 3/4	260230	20.00	260330	23.30
	.1360	29	1 3/4	2 7/8	260229	20.75	260329	23.95
	.1405	28	1 3/4	2 7/8	260228	20.90	260328	24.40
	.1406		1 3/4	2 7/8	260009	21.20	260109	24.75
1/4	.1440	27	1 7/8	3	260227	21.50	260327	24.90
	.1470	26	1 7/8	3	260226	19.90	260326	23.30
	.1495	25	1 7/8	3	260225	19.90	260325	23.30
	.1520	24	2	3 1/8	260224	21.50	260324	24.90
5/32	.1540	23	2	3 1/8	260223	20.90	260323	24.40
	.1562		2	3 1/8	260010	20.80	260110	24.40
	.1570	22	2	3 1/8	260222	23.00	260322	27.00
	.1590	21	2 1/8	3 1/4	260221	22.15	260321	25.80
3/16	.1610	20	2 1/8	3 1/4	260220	22.70	260320	26.25
	.1660	19	2 1/8	3 1/4	260219	22.70	260319	26.25
	.1695	18	2 1/8	3 1/4	260218	22.70	260318	26.25
	.1719		2 1/8	3 1/4	260011	22.70	260111	26.25
1/2	.1730	17	2 3/16	3 3/8	260217	22.70	260317	26.25
	.1770	16	2 3/16	3 3/8	260216	22.15	260316	25.80
	.1800	15	2 3/16	3 3/8	260215	23.00	260315	27.00
	.1820	14	2 3/16	3 3/8	260214	22.15	260314	25.80
5/8	.1850	13	2 5/16	3 1/2	260213	24.40	260313	25.80
	.1875		2 5/16	3 1/2	260012	22.15	260112	25.80
	.1890	12	2 5/16	3 1/2	260212	25.55	260312	27.00
	.1910	11	2 5/16	3 1/2	260211	23.55	260311	27.20
3/4	.1935	10	2 7/16	3 5/8	260210	23.00	260310	27.00
	.1960	9	2 7/16	3 5/8	260209	23.55	260309	27.20
	.1990	8	2 7/16	3 5/8	260208	23.55	260308	27.20

*Solid Carbide

TOOL DIAMETER			LENGTH		118° POINT		135° POINT	
FRAC.	DEC.	WIRE LETTER	FLUTE	OVER-ALL	TYPE 2600 EDP NO.	PRICE	TYPE 2601 EDP NO.	PRICE
13/64	.2010	7	2 7/16	3 5/8	260207	\$23.55	260307	\$27.20
	.2031		2 7/16	3 5/8	260013	24.35	260113	28.00
	.2040	6	2 1/2	3 3/4	260206	24.10	260306	27.95
7/32	.2055	5	2 1/2	3 3/4	260205	24.35	260305	27.20
	.2090	4	2 1/2	3 3/4	260204	24.10	260304	27.95
	.2130	3	2 1/2	3 3/4	260203	24.35	260303	27.20
1/4	.2188		2 1/2	3 3/4	260014	24.35	260114	28.00
	.2210	2	2 5/8	3 7/8	260202	25.35	260302	29.30
	.2280	1	2 5/8	3 7/8	260201	24.85	260301	28.85
5/16	.2344		2 5/8	3 7/8	260015	26.10	260115	30.40
	.2500	E	2 3/4	4	260016	26.10	260116	30.40
	.2656		2 7/8	4 1/8	260017	29.10	260117	33.30
3/8	.2812		2 15/16	4 1/4	260018	30.90	260118	35.65
	.2969		3 1/16	4 3/8	260019	34.15	260119	39.50
	.3125		3 3/16	4 1/2	260020	33.40	260120	38.70
7/16	.3281		3 3/16	4 5/8	260021	35.40	260121	41.10
	.3438		3 7/16	4 3/4	260022	35.40	260122	41.10
	.3594		3 1/2	4 7/8	260023	37.70	260123	43.80
1/2	.3750		3 5/8	5	260024	37.70	260124	43.80
	.3906		3 3/4	5 1/8	260025	40.95	260125	47.70
	.4062		3 7/8	5 1/4	260026	40.95	260126	47.70
5/8	.4219		3 15/16	5 3/8	260027	44.55	260127	51.75
	.4375		4 1/16	5 1/2	260028	44.55	260128	51.75
	.4531		4 3/16	5 5/8	260029	51.30	260129	59.35
3/4	.4688		4 5/16	5 3/4	260030	50.05	260130	58.00
	.4844		4 3/8	5 7/8	260031	56.10	260131	64.95
	.5000		4 1/2	6	260032	61.55	260132	64.95
7/8	.5312		4 13/16	6 5/8	260034	80.20	260134	93.20
	.5625		4 13/16	6 5/8	260036	80.95	260136	94.00
	.5938		5 3/16	7 1/8	260038	86.85	260138	100.95
1	.6250		5 3/16	7 1/8	260040	98.50	260140	114.20
	.6562		5 3/16	7 1/8	260042	100.20	260142	116.20
	.6875		5 5/8	7 5/8	260044	102.10	260144	118.45
1 1/8	.7188		5 5/8	7 5/8	260046	120.55	260146	133.90
	.7500		5 13/16	8	260048	122.95	260148	136.75
	-	-	-	-	-	-	-	-



AIRCRAFT EXTENSION DRILLS

CARBIDE TIPPED - 135° POINT



TYPE 2610 - AIRCRAFT EXTENSION DRILLS - 6"

6" overall length aircraft extension drill.
135° split point per NAS 907 specifications.

TYPE 2611 - AIRCRAFT EXTENSION DRILLS - 12"

Same as type 2610, except 12" long.

USE:

For drilling holes where reach is normally not accessible with jobbers or taper length drills.
Feeds should be light to medium range.
Not recommended for deep hole applications.

TOOL DIAMETER			FLUTE LENGTH	6" OVERALL LENGTH		12" OVERALL LENGTH	
FRAC.	WIRE LETTER	DEC. EQUIV.		TYPE 2610 EDP NO.	PRICE	TYPE 2611 EDP NO.	PRICE
1/8	30	.1285	1 5/8	261008	25.80	261108	30.40
	29	.1360	1 3/4	261229	36.20	261329	42.65
	28	.1405	1 3/4	261228	36.80	261328	43.40
3/64	27	.1406	1 3/4	261009	28.00	261109	32.90
	26	.1440	1 7/8	261227	37.70	261327	44.20
	25	.1470	1 7/8	261226	36.80	261326	43.40
	25	.1495	1 7/8	261225	36.80	261325	43.40
1/2	24	.1520	2	261224	37.70	261324	44.20
	23	.1540	2	261223	36.80	261323	43.40
		.1562	2	261010	27.40	261110	32.35
		.1570	2	261222	40.20	261322	47.35
5/16	21	.1590	2 1/8	261221	39.00	261321	46.00
	20	.1610	2 1/8	261220	40.05	261320	47.00
	19	.1660	2 1/8	261219	40.05	261319	47.00
	18	.1695	2 1/8	261218	40.05	261318	47.00
3/8	17	.1719	2 1/8	261011	30.05	261111	35.20
	16	.1730	2 3/16	261217	40.05	261317	47.00
		.1770	2 3/16	261216	39.00	261316	46.00
		.1800	2 3/16	261215	40.20	261315	47.35
7/16	14	.1820	2 3/16	261214	39.00	261314	46.00
	13	.1850	2 3/16	261213	39.00	261313	46.00
		.1875	2 5/16	261012	29.20	261112	34.50
		.1890	2 5/16	261212	40.70	261312	47.80
1/2	11	.1910	2 5/16	261211	41.10	261311	48.55
	10	.1935	2 7/16	261210	40.70	261310	47.80
	9	.1960	2 7/16	261209	41.10	261309	48.55
	8	.1990	2 7/16	261208	\$41.10	261308	\$48.55

TOOL DIAMETER			FLUTE LENGTH	6" OVERALL LENGTH		12" OVERALL LENGTH	
FRAC.	WIRE LETTER	DEC. EQUIV.		TYPE 2610 EDP NO.	PRICE	TYPE 2611 EDP NO.	PRICE
13/64	7	.2010	2 7/16	261207	41.10	261307	48.55
		.2031	2 7/16	261013	32.05	261113	37.70
	6	.2040	2 1/2	261206	42.30	261306	49.85
	5	.2055	2 1/2	261205	41.10	261305	48.55
7/32	4	.2090	2 1/2	261204	38.70	261304	45.55
	3	.2130	2 1/2	261203	41.10	261303	48.55
		.2188	2 1/2	261014	32.05	261114	37.70
	2	.2210	2 5/8	261202	40.50	261302	47.65
15/64	1	.2280	2 5/8	261201	40.05	261301	47.00
		.2344	2 5/8	261015	34.50	261115	40.55
	1/4	.2500	2 3/4	261016	34.50	261116	40.55
	17/64	.2656	2 7/8	261017	36.80	261117	43.40
9/32		.2812	2 15/16	261018	36.80	261118	43.40
	19/64	.2969	3 1/16	261019	40.05	261119	47.00
	5/16	.3125	3 3/16	261020	40.05	261120	47.00
	21/64	.3281	3 5/16	261021	42.50	261121	50.05
11/32		.3438	3 7/16	261022	42.50	261122	50.05
	23/64	.3594	3 1/2	261023	45.35	261123	53.15
	3/8	.3750	3 5/8	261024	45.35	261124	53.15
	25/64	.3906	3 3/4	261025	46.50	261125	54.80
13/32		.4062	3 7/8	261026	45.90	261126	53.95
	27/64	.4219	3 15/16	261027	50.40	261127	59.40
	7/16	.4375	4 1/16	261028	50.40	261128	59.40
	29/64	.4531	4 3/16	261029	57.95	261129	68.25
15/32		.4688	4 5/16	261030	56.80	261130	66.80
	31/64	.4844	4 3/8	261031	63.75	261131	75.00
	1/2	.5000	4 1/2	261032	63.75	261132	75.00
	-	-	-	-	-	-	-



COOLANT FEEDING REAMERS

CARBIDE TIPPED - CENTER FEED FOR BLIND HOLES - STRAIGHT FLUTES

TYPE 2424 - COOLANT FEEDING REAMER

Full length center feeding coolant hole.
Flute long carbide on .2841" tool diameter and larger.

Tool diameter tolerance +.0003", -.0000"

USE:

Center coolant feeding hole for reaming blind holes as chips are flushed *back* towards shank.



OPTIONS:

- Decimal sizes priced below.
- Cut diam. reduced for step or pilot.
- End chamfer other than 45°.
- End cutting or corner radius.
- Short shank or undersize shank diam.
- Flat on shank or tanged shank.

TOOL DIAMETER		NO. OF FLUTES	LENGTH		MAX. SHANK DIAM.	TYPE 2424 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRAC.	DEC.		FLUTE	OVER-ALL					1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
3/16	.1875	4	1 1/4	5	.1805	242406	\$154.95	0.1770 - 0.2040	\$203.40	\$179.10	\$170.95	\$167.10	\$162.95	\$159.70
13/64	.2031	4	1 1/4	5	.1805	24242031	154.95	-	-	-	-	-	-	-
7/32	.2188	4	1 1/4	5	.2075	242407	154.95	0.2041 - 0.2210	203.40	179.10	170.95	167.10	162.95	159.70
15/64	.2344	4	1 1/2	6	.2265	24242344	154.95	0.2211 - 0.2380	203.40	179.10	170.95	167.10	162.95	159.70
1/4	.2500	4	1 1/2	6	.2405	242408	154.95	0.2381 - 0.2530	203.40	179.10	170.95	167.10	162.95	159.70
17/64	.2656	4	1 1/2	6	.2485	24242656	164.40	-	-	-	-	-	-	-
9/32	.2812	4	1 1/2	6	.2485	242409	164.40	0.2531 - 0.2840	212.85	188.60	180.45	176.55	172.40	169.25
19/64	.2969	4	1 1/2	6	.2792	24242969	173.70	-	-	-	-	-	-	-
5/16	.3125	4	1 1/2	6	.2792	242410	173.70	0.2841 - 0.3150	222.20	197.80	189.70	185.65	181.70	178.40
21/64	.3281	4	1 1/2	6	.2792	24243281	175.05	-	-	-	-	-	-	-
11/32	.3438	4	1 1/2	6	.2792	242411	175.05	0.3151 - 0.3470	223.45	199.15	191.15	187.15	183.10	179.85
23/64	.3594	4	1 3/4	7	.3105	24243594	176.80	-	-	-	-	-	-	-
3/8	.3750	4	1 3/4	7	.3105	242412	176.80	0.3471 - 0.3780	225.30	201.00	192.90	188.95	184.80	181.60
25/64	.3906	4	1 3/4	7	.3105	24243906	177.40	-	-	-	-	-	-	-
13/32	.4062	4	1 3/4	7	.3105	242413	177.40	0.3781 - 0.4090	225.75	201.65	193.50	189.55	185.45	182.05
27/64	.4219	6	1 3/4	7	.3730	24244219	179.15	-	-	-	-	-	-	-
7/16	.4375	6	1 3/4	7	.3730	242414	179.15	0.4091 - 0.4410	227.60	203.40	195.15	191.40	187.15	183.95
29/64	.4531	6	1 3/4	7	.3730	24244531	180.70	-	-	-	-	-	-	-
15/32	.4688	6	1 3/4	7	.3730	242415	180.70	0.4411 - 0.4720	229.20	204.95	196.75	192.95	188.70	185.50
31/64	.4844	6	2	8	.4355	24244844	182.75	-	-	-	-	-	-	-
1/2	.5000	6	2	8	.4355	242416	182.75	0.4721 - 0.5030	231.25	207.05	198.95	195.00	190.90	187.55
33/64	.5156	6	2	8	.4355	24245156	186.90	-	-	-	-	-	-	-
17/32	.5312	6	2	8	.4355	242417	186.90	0.5031 - 0.5340	235.20	211.05	202.95	199.05	194.95	191.55
9/16	.5625	6	2	8	.4355	242418	189.55	0.5341 - 0.5660	238.00	213.70	205.60	201.80	197.60	194.30
19/32	.5938	6	2	8	.4355	242419	193.55	0.5661 - 0.5970	241.95	217.65	209.65	205.75	201.65	198.30
5/8	.6250	6	2 1/4	9	.5615	242420	197.20	0.5971 - 0.6280	245.60	221.30	213.30	209.25	205.25	201.90
21/32	.6562	6	2 1/4	9	.5615	242421	218.30	0.6281 - 0.6590	266.70	242.45	234.30	230.55	226.30	223.05
11/16	.6875	6	2 1/4	9	.5615	242422	222.70	0.6591 - 0.6910	271.10	247.00	238.70	235.00	230.75	227.50
23/32	.7188	6	2 1/4	9	.6245	242423	232.30	0.6911 - 0.7220	280.70	256.55	248.45	244.55	240.40	237.05
3/4	.7500	6	2 1/2	9 1/2	.6245	242424	232.30	0.7221 - 0.7530	280.70	256.55	248.45	244.55	240.40	237.05
25/32	.7812	6	2 1/2	9 1/2	.6245	242425	239.25	0.7531 - 0.7840	287.60	263.30	255.30	251.45	247.20	243.90
13/16	.8125	6	2 1/2	9 1/2	.6245	242426	239.25	0.7841 - 0.8160	287.60	263.30	255.30	251.45	247.20	243.90
27/32	.8438	6	2 1/2	9 1/2	.6245	242427	247.40	0.8161 - 0.8470	295.75	271.65	263.35	259.55	255.45	252.05
7/8	.8750	6	2 5/8	10	.7495	242428	256.80	0.8471 - 0.8780	307.00	281.75	273.35	269.30	265.10	261.65
29/32	.9062	6	2 5/8	10	.7495	242429	285.10	0.8781 - 0.9090	335.35	310.15	301.65	297.80	293.35	290.05
15/16	.9375	8	2 5/8	10	.7495	242430	285.10	0.9091 - 0.9410	335.35	310.15	301.65	297.80	293.35	290.05
31/32	.9688	8	2 5/8	10	.7495	242431	286.20	0.9411 - 0.9720	336.45	311.30	303.00	298.90	294.45	291.15
1	1.0000	8	2 3/4	10 1/2	.8745	242432	286.20	0.9721 - 1.0030	336.45	311.30	303.00	298.90	294.45	291.15
1 1/16	1.0625	8	2 3/4	10 1/2	.8745	242434	294.35	1.0031 - 1.0660	344.60	319.40	311.00	307.00	302.55	299.25
1 1/8	1.1250	8	2 7/8	11	.8745	242436	304.55	1.0661 - 1.1280	354.80	329.65	321.05	317.10	312.80	309.40
1 3/16	1.1875	8	2 7/8	11	.9995	242438	326.20	1.1281 - 1.1905	376.45	351.20	342.75	338.85	334.60	331.20
1 1/4	1.2500	8	3	11 1/2	.9995	242440	330.40	1.1906 - 1.2530	380.80	355.55	347.10	343.15	338.85	335.50
1 5/16	1.3125	8	3	11 1/2	.9995	242442	339.95	1.2531 - 1.3155	390.25	365.00	356.60	352.50	348.25	344.90
1 3/8	1.3750	8	3 1/4	12	.9995	242444	353.75	1.3156 - 1.3780	404.00	378.70	370.40	366.40	362.05	358.55
1 7/16	1.4375	8	3 1/4	12	.9995	242446	364.70	1.3781 - 1.4405	415.10	389.80	381.50	377.50	373.10	369.80
1 1/2	1.5000	8	3 1/2	12 1/2	1.2495	242448	376.95	1.4406 - 1.5030	427.25	402.10	393.70	389.65	385.35	381.95
1 9/16	1.5625	8	3 1/2	12 1/2	1.2495	242450	401.35	1.5031 - 1.5660	449.30	425.30	417.30	413.45	409.25	406.20
1 5/8	1.6250	8	3 1/2	13	1.2495	242452	439.50	1.5661 - 1.6280	487.20	463.35	455.35	451.40	447.30	444.20
1 11/16	1.6875	8	3 1/2	13	1.2495	242454	448.70	1.6281 - 1.6910	496.65	472.75	464.70	460.80	456.65	453.50
1 3/4	1.7500	10	3 1/2	13 1/2	1.2495	242456	491.45	1.6911 - 1.7530	539.35	515.35	507.30	503.55	499.35	496.20
1 13/16	1.8125	10	3 1/2	13 1/2	1.4995	242458	511.45	1.7531 - 1.8160	559.45	535.45	527.45	523.55	519.40	516.35
1 7/8	1.8750	10	3 1/2	14	1.4995	242460	540.00	1.8161 - 1.8780	587.90	563.85	555.95	552.10	547.95	544.70
1 15/16	1.9375	10	3 1/2	14	1.4995	242462	572.50	1.8781 - 1.9410	620.35	596.45	588.40	584.60	580.45	577.25
2	2.0000	12	3 1/2	14	1.4995	242464	594.50	1.9411 - 2.0030	642.45	618.55	610.45	606.65	602.45	599.30

*Quantities of 15 or more: price of fractional size in same size range.



COOLANT FEEDING REAMERS

CARBIDE TIPPED - FLUTE FEED FOR THROUGH HOLES - STRAIGHT FLUTES

TYPE 2426 - COOLANT FEEDING REAMER

Coolant feed outlets in *each* flute.

Flute long carbide on .2841" tool diameter and larger.

Tool diameter tolerance .0003", -.0000".

USE:

Flute coolant feeding outlets for reaming through holes as chips are flushed *forward* through the hole being reamed.



OPTIONS:

Decimal sizes priced below.

Cut diam. reduced for step or pilot.

End chamfer other than 45°.

End cutting or corner radius.

Short shank or undersize shank diam.

Flat on shank or tanged shank.

TOOL DIAMETER		NO. OF FLUTES	LENGTH		MAX. SHANK DIAM.	TYPE 2426 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL		FLUTE	OVER-ALL					1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
3/16	.1875	4	1 1/4	5	.1805	242606	\$160.80	0.1770 - 0.2040	\$209.15	\$185.05	\$176.80	\$172.95	\$168.80	\$165.45
19/64	.2031	4	1 1/4	5	.1805	24262031	160.80	-	-	-	-	-	-	-
7/32	.2188	4	1 1/4	5	.2075	242607	160.80	0.2041 - 0.2210	209.15	185.05	176.80	172.95	168.80	165.45
19/64	.2344	4	1 1/2	6	.2265	24262344	160.80	0.2211 - 0.2380	209.15	185.05	176.80	172.95	168.80	165.45
1/4	.2500	4	1 1/2	6	.2405	242608	160.80	0.2381 - 0.2530	209.15	185.05	176.80	172.95	168.80	165.45
17/64	.2656	4	1 1/2	6	.2485	24262656	164.40	-	-	-	-	-	-	-
9/32	.2812	4	1 1/2	6	.2485	242609	164.40	0.2531 - 0.2840	212.85	188.60	180.45	176.55	172.40	169.25
19/64	.2969	4	1 1/2	6	.2792	24262969	178.40	-	-	-	-	-	-	-
5/16	.3125	4	1 1/2	6	.2792	242610	178.40	0.2841 - 0.3150	226.90	202.50	194.35	190.60	186.50	183.20
21/64	.3281	4	1 1/2	6	.2792	24263281	178.40	-	-	-	-	-	-	-
11/32	.3438	4	1 1/2	6	.2792	242611	178.40	0.3151 - 0.3470	226.90	202.50	194.35	190.60	186.50	183.20
23/64	.3594	4	1 3/4	7	.3105	24263594	178.40	-	-	-	-	-	-	-
3/8	.3750	4	1 3/4	7	.3105	242612	178.40	0.3471 - 0.3780	226.90	202.50	194.35	190.60	186.50	183.20
25/64	.3906	4	1 3/4	7	.3105	24263906	182.75	-	-	-	-	-	-	-
13/32	.4062	4	1 3/4	7	.3105	242613	182.75	0.3781 - 0.4090	231.25	207.05	198.95	195.00	190.90	187.55
27/64	.4219	6	1 3/4	7	.3730	24264219	187.25	-	-	-	-	-	-	-
7/16	.4375	6	1 3/4	7	.3730	242614	187.25	0.4091 - 0.4410	235.70	211.45	203.40	199.45	195.40	192.05
29/64	.4531	6	1 3/4	7	.3730	24264531	187.25	-	-	-	-	-	-	-
15/32	.4688	6	1 3/4	7	.3730	242615	187.25	0.4411 - 0.4720	235.70	211.45	203.40	199.45	195.40	192.05
31/64	.4844	6	2	8	.4355	24264844	187.25	-	-	-	-	-	-	-
1/2	.5000	6	2	8	.4355	242616	187.25	0.4721 - 0.5030	235.70	211.45	203.40	199.45	195.40	192.05
33/64	.5156	6	2	8	.4355	24265156	198.10	-	-	-	-	-	-	-
17/32	.5312	6	2	8	.4355	242617	198.10	0.5031 - 0.5340	246.45	222.30	214.20	210.35	206.10	202.85
9/16	.5625	6	2	8	.4355	242618	200.95	0.5341 - 0.5660	249.30	225.15	216.85	213.05	208.85	205.60
19/32	.5938	6	2	8	.4355	242619	202.70	0.5661 - 0.5970	251.10	226.95	218.80	214.90	210.75	207.45
5/8	.6250	6	2 1/4	9	.5615	242620	202.70	0.5971 - 0.6280	251.10	226.95	218.80	214.90	210.75	207.45
21/32	.6562	6	2 1/4	9	.5615	242621	224.70	0.6281 - 0.6590	273.25	248.90	240.75	236.95	232.70	229.55
11/16	.6875	6	2 1/4	9	.5615	242622	224.70	0.6591 - 0.6910	273.25	248.90	240.75	236.95	232.70	229.55
23/32	.7188	6	2 1/4	9	.5615	242623	240.15	0.6911 - 0.7220	288.55	264.35	256.25	252.35	248.15	244.85
3/4	.7500	6	2 1/2	9 1/2	.6245	242624	240.15	0.7221 - 0.7530	288.55	264.35	256.25	252.35	248.15	244.85
25/32	.7812	6	2 1/2	9 1/2	.6245	242625	240.15	0.7531 - 0.7840	288.55	264.35	256.25	252.35	248.15	244.85
13/16	.8125	6	2 1/2	9 1/2	.6245	242626	240.15	0.7841 - 0.8160	288.55	264.35	256.25	252.35	248.15	244.85
27/32	.8438	6	2 1/2	9 1/2	.6245	242627	247.40	0.8161 - 0.8470	295.75	271.65	263.35	259.55	255.45	252.05
7/8	.8750	6	2 5/8	10	.7495	242628	256.80	0.8471 - 0.8780	307.00	281.75	273.35	269.30	265.10	261.65
29/32	.9062	6	2 5/8	10	.7495	242629	288.25	0.8781 - 0.9090	338.45	313.35	304.95	300.85	296.45	293.20
15/16	.9375	8	2 5/8	10	.7495	242630	295.05	0.9091 - 0.9410	345.15	320.05	311.60	307.60	303.20	299.90
31/32	.9688	8	2 5/8	10	.7495	242631	295.05	0.9411 - 0.9720	345.15	320.05	311.60	307.60	303.20	299.90
1	1.0000	8	2 3/4	10 1/2	.8745	242632	295.05	0.9721 - 1.0030	345.15	320.05	311.60	307.60	303.20	299.90
1 1/16	1.0625	8	2 3/4	10 1/2	.8745	242634	311.90	1.0031 - 1.0660	362.15	337.15	328.65	324.60	320.30	317.00
1 1/8	1.1250	8	2 7/8	11	.8745	242636	313.30	1.0661 - 1.1280	363.55	338.30	329.80	325.85	321.60	318.15
1 3/16	1.1875	8	2 7/8	11	.9995	242638	326.20	1.1281 - 1.1905	376.45	351.20	342.75	338.85	334.60	331.20
1 1/4	1.2500	8	3	11 1/2	.9995	242640	330.40	1.1906 - 1.2530	380.80	355.55	347.10	343.15	338.85	335.50
1 5/16	1.3125	8	3	11 1/2	.9995	242642	339.95	1.2531 - 1.3155	390.25	365.00	356.60	352.50	348.25	344.90
1 3/8	1.3750	8	3 1/4	12	.9995	242644	353.75	1.3156 - 1.3780	404.00	378.70	370.40	366.40	362.05	358.55
1 7/16	1.4375	8	3 1/4	12	.9995	242646	364.70	1.3781 - 1.4405	415.10	389.80	381.50	377.50	373.10	369.80
1 1/2	1.5000	8	3 1/2	12 1/2	1.2495	242648	376.95	1.4406 - 1.5030	427.25	402.10	393.70	389.65	385.35	381.95
1 9/16	1.5625	8	3 1/2	12 1/2	1.2495	242650	423.80	1.5031 - 1.5660	471.75	447.75	439.70	435.95	431.70	428.60
1 5/8	1.6250	8	3 1/2	13	1.2495	242652	466.00	1.5661 - 1.6280	513.90	490.00	481.85	478.10	473.90	470.80
1 11/16	1.6875	8	3 1/2	13	1.2495	242654	474.10	1.6281 - 1.6910	522.00	498.05	490.00	486.20	481.95	478.90
1 3/4	1.7500	10	3 1/2	13 1/2	1.2495	242656	518.10	1.6911 - 1.7530	566.00	542.00	533.90	530.20	526.10	522.80
1 13/16	1.8125	10	3 1/2	13 1/2	1.4995	242658	539.50	1.7531 - 1.8160	587.35	563.45	555.35	551.50	547.40	544.25
1 7/8	1.8750	10	3 1/2	14	1.4995	242660	568.00	1.8161 - 1.8780	615.95	591.90	583.90	580.15	575.90	572.75
1 15/16	1.9375	10	3 1/2	14	1.4995	242662	604.30	1.8781 - 1.9410	652.15	628.25	620.10	616.30	612.15	609.05
2	2.0000	12	3 1/2	14	1.4995	242664	626.20	1.9411 - 2.0030	674.10	650.15	642.10	638.35	634.05	631.00

*Quantities of 15 or more: price of fractional size in same size range.



COOLANT FEEDING REAMERS

CARBIDE TIPPED - CENTER FEED FOR BLIND HOLES -
RIGHT SPIRAL FLUTES



TYPE 2413 - COOLANT FEEDING REAMER

Center coolant outlet.

Polished flutes; flute long carbide on .2841" tool diameter and larger.

Tool diameter tolerance plus .0003", minus .0000".

USE:

Center coolant outlet for reaming blind holes as chips are flushed back towards the shank.

Improves hole finish and permits higher feeds & speeds with longer tool life.

OPTIONS:

Decimal sizes priced below.

Metric tool diameter.

Cutting diameter reduced for step or pilot.

End chamfer other than 45°.

End cutting or corner radius.

Increased/decreased circular margin.

Increased/decreased tool diam. back taper.

Shortened shank or reduced shank diameter.

Flat(s) or tang on shank.

TOOL DIAMETER		NO. OF FLUTES	LENGTH		MAX SHANK DIAM.	TYPE 2413 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRAC.	DECIMAL		FLUTE	OVERALL					1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
1/4	.2500	4	1 1/2	6	.2405	241308	\$159.15	.2381 - .2530	\$204.25	\$181.70	\$174.10	\$170.50	\$166.55	\$163.50
9/32	.2812	4	1 1/2	6	.2485	241309	162.75	.2531 - .2840	206.35	184.55	177.25	173.80	170.10	167.00
3/16	.3125	4	1 1/2	6	.2792	241310	178.40	.2841 - .3150	223.55	200.95	193.30	189.70	185.65	182.70
11/32	.3438	4	1 1/2	6	.2792	241311	179.70	.3151 - .3470	224.85	202.30	194.80	191.15	187.15	184.10
3/8	.3750	4	1 3/4	7	.3105	241312	181.60	.3471 - .3780	226.75	204.00	196.50	192.95	189.10	186.10
13/32	.4062	4	1 3/4	7	.3105	241313	182.05	.3781 - .4090	227.20	204.70	197.15	193.50	189.55	186.55
7/16	.4375	6	1 3/4	7	.3730	241314	183.95	.4091 - .4410	229.20	206.45	198.95	195.40	191.45	188.50
15/32	.4688	6	1 3/4	7	.3730	241315	185.55	.4411 - .4720	230.85	208.10	200.60	196.95	193.05	190.05
1/2	.5000	6	2	8	.4355	241316	192.85	.4721 - .5030	239.25	215.95	208.10	204.45	200.45	197.45
17/32	.5312	6	2	8	.4355	241317	199.80	.5031 - .5340	246.15	222.90	215.10	211.45	207.45	204.35
9/16	.5625	6	2	8	.4355	241318	199.80	.5341 - .5660	246.15	222.90	215.10	211.45	207.45	204.35
19/32	.5938	6	2	8	.4355	241319	207.70	.5661 - .5970	254.20	230.90	223.10	219.50	215.40	212.30
5/8	.6250	6	2 1/4	9	.5615	241320	207.70	.5971 - .6280	254.20	230.90	223.10	219.50	215.40	212.30
21/32	.6562	6	2 1/4	9	.5615	241321	234.75	.6281 - .6590	281.10	257.95	250.05	246.30	242.40	239.30
11/16	.6875	6	2 1/4	9	.5615	241322	234.75	.6591 - .6910	281.10	257.95	250.05	246.30	242.40	239.30
23/32	.7188	6	2 1/4	9	.5615	241323	244.85	.6911 - .7220	291.40	268.10	260.35	256.70	252.60	249.40
3/4	.7500	6	2 1/2	9 1/2	.6245	241324	230.05	.7221 - .7530	273.70	251.80	244.55	241.00	237.25	234.30
25/32	.7812	6	2 1/2	9 1/2	.6245	241325	263.95	.7531 - .7840	310.30	287.00	279.35	275.55	271.65	268.40
13/16	.8125	6	2 1/2	9 1/2	.6245	241326	267.15	.7841 - .8160	313.55	290.30	282.55	278.85	274.95	271.85
27/32	.8438	6	2 1/2	9 1/2	.6245	241327	272.10	.8161 - .8470	318.70	295.40	287.60	283.80	279.95	276.75
7/8	.8750	6	2 5/8	10	.7495	241328	286.85	.8471 - .8780	334.90	311.00	302.80	299.05	294.85	291.65
29/32	.9062	6	2 5/8	10	.7495	241329	303.90	.8781 - .9090	352.05	327.95	319.90	316.15	311.85	308.70
15/16	.9375	8	2 5/8	10	.7495	241330	318.50	.9091 - .9410	366.70	342.50	334.60	330.60	326.40	323.20
31/32	.9688	8	2 5/8	10	.7495	241331	319.40	.9411 - .9720	367.45	343.45	335.35	331.40	327.30	324.15
1	1.0000	8	2 3/4	10 1/2	.8745	241332	319.90	.9721 - 1.0030	368.05	343.90	335.85	332.00	327.90	324.60
1 1/16	1.0625	8	2 3/4	10 1/2	.8745	241334	328.75	1.0031 - 1.0660	376.90	352.95	344.75	340.85	336.75	333.55
1 1/8	1.1250	8	2 7/8	11	.8745	241336	340.15	1.0661 - 1.1280	388.45	364.25	356.25	352.35	348.25	345.05
1 3/16	1.1875	8	2 7/8	11	.9995	241338	364.45	1.1281 - 1.1905	412.60	388.60	380.40	376.70	372.35	369.10
1 1/4	1.2500	8	3	11 1/2	.9995	241340	369.10	1.1906 - 1.2530	417.30	393.20	385.15	381.30	377.15	374.00
1 3/16	1.3125	8	3	11 1/2	.9995	241342	379.85	1.2531 - 1.3155	428.00	403.85	395.75	391.90	387.85	384.50
1 3/8	1.3750	8	3 1/4	12	.9995	241344	395.30	1.3156 - 1.3780	443.50	419.30	411.15	407.45	403.25	400.00
1 7/16	1.4375	8	3 1/4	12	.9995	241346	407.55	1.3781 - 1.4405	455.75	431.60	423.55	419.70	415.50	412.40
1 1/2	1.5000	8	3 1/2	12 1/2	1.2495	241348	421.35	1.4406 - 1.5030	469.50	445.50	437.35	433.40	429.35	426.15

*Quantities of 15 or more: price of fractional size in same size range.



COOLANT FEEDING REAMERS

CARBIDE TIPPED - FLUTE FEED FOR THROUGH HOLES -
RIGHT SPIRAL FLUTES



TYPE 2418 - COOLANT FEEDING REAMER

Coolant outlets in *each* flute.

Polished flutes; flute long carbide on .2841" tool diameter and larger.

Tool diameter tolerance plus .0003", minus .0000".

USE:

Flute coolant outlets for reaming through holes as chips are flushed *forward* through the hole being reamed.

Improves hole finish and permits higher feeds & speeds with longer tool life.

OPTIONS:

Decimal sizes priced below.

Metric tool diameter.

Cutting diameter reduced for step or pilot.

End chamfer other than 45°.

End cutting or corner radius.

Increased/decreased circular margin.

Increased/decreased tool diam. back taper.

Shortened shank or reduced shank diameter.

Flat(s) or tang on shank.

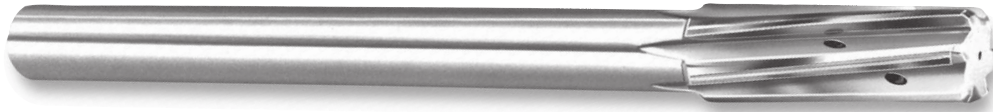
TOOL DIAMETER		NO. OF FLUTES	LENGTH		MAX SHANK DIAM.	TYPE 2418 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRAC.	DECIMAL		FLUTE	OVERALL					1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
1/4	.2500	4	1 1/2	6	.2405	241808	\$170.50	.2381 - .2530	\$218.85	\$194.70	\$186.55	\$182.65	\$178.60	\$175.20
9/32	.2812	4	1 1/2	6	.2485	241809	180.85	.2531 - .2840	229.25	205.05	196.85	193.00	188.90	185.55
5/16	.3125	4	1 1/2	6	.2792	241810	191.15	.2841 - .3150	239.50	215.20	207.10	203.35	199.05	195.85
11/32	.3438	4	1 1/2	6	.2792	241811	192.60	.3151 - .3470	241.00	216.70	208.60	204.75	200.50	197.45
3/8	.3750	4	1 3/4	7	.3105	241812	194.40	.3471 - .3780	243.05	218.65	210.50	206.70	202.50	199.30
13/32	.4062	4	1 3/4	7	.3105	241813	195.05	.3781 - .4090	243.45	219.25	211.30	207.30	203.05	199.85
7/16	.4375	6	1 3/4	7	.3730	241814	197.15	.4091 - .4410	245.55	221.25	213.20	209.20	205.15	201.85
15/32	.4688	6	1 3/4	7	.3730	241815	198.95	.4411 - .4720	247.35	223.05	214.90	211.05	206.90	203.65
1/2	.5000	6	2	8	.4355	241816	201.10	.4721 - .5030	249.50	225.35	217.30	213.35	209.15	205.95
17/32	.5312	6	2	8	.4355	241817	208.55	.5031 - .5340	256.95	232.60	224.55	220.80	216.50	213.30
9/16	.5625	6	2	8	.4355	241818	208.55	.5341 - .5660	256.95	232.60	224.55	220.80	216.50	213.30
19/32	.5938	6	2	8	.4355	241819	216.75	.5661 - .5970	265.20	241.00	232.80	229.00	224.75	221.50
5/8	.6250	6	2 1/4	9	.5615	241820	216.75	.5971 - .6280	265.20	241.00	232.80	229.00	224.75	221.50
21/32	.6562	6	2 1/4	9	.5615	241821	244.85	.6281 - .6590	293.30	269.15	261.00	257.05	252.90	249.65
11/16	.6875	6	2 1/4	9	.5615	241822	244.85	.6591 - .6910	293.30	269.15	261.00	257.05	252.90	249.65
23/32	.7188	6	2 1/4	9	.5615	241823	255.55	.6911 - .7220	303.95	279.65	271.80	267.80	263.70	260.35
3/4	.7500	6	2 1/2	9 1/2	.6245	241824	255.55	.7221 - .7530	303.95	279.65	271.80	267.80	263.70	260.35
25/32	.7812	6	2 1/2	9 1/2	.6245	241825	275.40	.7531 - .7840	323.75	299.50	291.45	287.60	283.40	280.20
13/16	.8125	6	2 1/2	9 1/2	.6245	241826	278.80	.7841 - .8160	327.20	303.00	294.85	291.05	286.80	283.50
27/32	.8438	6	2 1/2	9 1/2	.6245	241827	284.05	.8161 - .8470	332.50	308.20	300.05	296.20	292.00	288.80
7/8	.8750	6	2 5/8	10	.7495	241828	299.30	.8471 - .8780	349.65	324.45	316.05	311.90	307.65	304.20
29/32	.9062	6	2 5/8	10	.7495	241829	317.10	.8781 - .9090	367.30	342.25	333.80	329.75	325.40	322.10
15/16	.9375	8	2 5/8	10	.7495	241830	332.40	.9091 - .9410	382.65	357.40	348.90	345.05	340.70	337.30
31/32	.9688	8	2 5/8	10	.7495	241831	333.25	.9411 - .9720	383.50	358.40	349.85	345.85	341.55	338.20
1	1.0000	8	2 3/4	10 1/2	.8745	241832	333.80	.9721 - 1.0030	384.15	359.00	350.40	346.40	342.15	338.75
1 1/16	1.0625	8	2 3/4	10 1/2	.8745	241834	384.95	1.0031 - 1.0660	435.15	410.00	401.55	397.55	393.25	389.80
1 1/8	1.1250	8	2 7/8	11	.8745	241836	386.60	1.0661 - 1.1280	436.85	411.60	403.25	399.20	394.95	391.50
1 3/16	1.1875	8	2 7/8	11	.9995	241838	402.65	1.1281 - 1.1905	452.65	427.50	419.15	415.15	410.90	407.45
1 1/4	1.2500	8	3	11 1/2	.9995	241840	407.85	1.1906 - 1.2530	458.10	432.90	424.55	420.50	416.15	412.75
1 3/8	1.3125	8	3	11 1/2	.9995	241842	419.65	1.2531 - 1.3155	469.85	444.70	436.15	432.20	427.95	424.55
1 3/8	1.3750	8	3 1/4	12	.9995	241844	436.40	1.3156 - 1.3780	486.85	461.65	453.10	449.20	444.90	441.45
1 7/16	1.4375	8	3 1/4	12	.9995	241846	450.10	1.3781 - 1.4405	500.45	475.25	466.85	462.85	458.60	455.15
1 1/2	1.5000	8	3 1/2	12 1/2	1.2495	241848	465.30	1.4406 - 1.5030	515.45	490.45	481.90	477.90	473.60	470.20

*Quantities of 15 or more: price of fractional size in same size range.



COOLANT FEEDING REAMERS

CARBIDE TIPPED - FLUTE FEED FOR THROUGH HOLES - LEFT SPIRAL FLUTES



TYPE 2428 - COOLANT FEEDING REAMER

Coolant outlets in *each* flute.
 Polished flutes; flute long carbide on .2841" tool diameter and larger.
 Left spiral flutes should not be used on blind holes.
 Tool diameter tolerance plus .0003", minus .0000".

USE:

Flute coolant outlets for reaming through holes as chips are flushed *forward* through the hole being reamed.
 Improves hole finish and permits higher feeds & speeds with longer tool life.

OPTIONS:

- Decimal sizes priced below.
- Metric tool diameter.
- Cutting diameter reduced for step or pilot.
- End chamfer other than 45°.
- End cutting or corner radius.
- Increased/decreased circular margin.
- Increased/decreased tool diam. back taper.
- Shortened shank or reduced shank diameter.
- Flat(s) or tang on shank.

TOOL DIAMETER		NO. OF FLUTES	LENGTH		MAX SHANK DIAM.	TYPE 2428 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRAC.	DECIMAL		FLUTE	OVERALL					1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14**
* 1/4	.2500	4	1 1/2	6	.2405	242808	\$197.15	.2381 - .2530	\$245.55	\$221.25	\$213.20	\$209.20	\$205.15	\$201.85
* 9/32	.2812	4	1 1/2	6	.2485	242809	209.05	.2531 - .2840	257.40	233.30	225.20	221.25	217.20	213.85
3/16	.3125	4	1 1/2	6	.2792	242810	220.90	.2841 - .3150	269.25	244.90	236.95	233.05	228.85	225.60
11/32	.3438	4	1 1/2	6	.2792	242811	222.60	.3151 - .3470	270.85	246.65	238.60	234.75	230.60	227.20
3/8	.3750	4	1 3/4	7	.3105	242812	224.75	.3471 - .3780	273.30	249.00	240.90	237.00	232.80	229.70
13/32	.4062	4	1 3/4	7	.3105	242813	225.70	.3781 - .4090	274.15	249.95	241.80	237.95	233.65	230.55
7/16	.4375	6	1 3/4	7	.3730	242814	227.80	.4091 - .4410	276.30	252.00	243.90	240.10	235.95	232.60
15/32	.4688	6	1 3/4	7	.3730	242815	229.85	.4411 - .4720	278.20	254.10	245.95	242.10	237.95	234.60
1/2	.5000	6	2	8	.4355	242816	232.80	.4721 - .5030	281.35	257.00	248.90	244.90	240.90	237.65
17/32	.5312	6	2	8	.4355	242817	237.70	.5031 - .5340	286.10	261.80	253.70	249.95	245.70	242.45
9/16	.5625	6	2	8	.4355	242818	241.10	.5341 - .5660	289.55	265.30	257.15	253.40	249.15	245.95
19/32	.5938	6	2	8	.4355	242819	246.15	.5661 - .5970	294.50	270.40	262.25	258.40	254.25	250.95
5/8	.6250	6	2 1/4	9	.5615	242820	250.75	.5971 - .6280	299.15	274.95	266.75	262.95	258.75	255.50
21/32	.6562	6	2 1/4	9	.5615	242821	277.70	.6281 - .6590	326.15	301.85	293.75	289.90	285.75	282.40
11/16	.6875	6	2 1/4	9	.5615	242822	283.30	.6591 - .6910	331.80	307.55	299.30	295.55	291.40	288.15
23/32	.7188	6	2 1/4	9	.5615	242823	289.40	.6911 - .7220	337.75	313.50	305.35	301.50	297.35	294.05
3/4	.7500	6	2 1/2	9 1/2	.6245	242824	295.55	.7221 - .7530	343.90	319.75	311.45	307.75	303.55	300.30
25/32	.7812	6	2 1/2	9 1/2	.6245	242825	300.60	.7531 - .7840	348.90	324.80	316.50	312.75	308.50	305.30
13/16	.8125	6	2 1/2	9 1/2	.6245	242826	304.20	.7841 - .8160	352.50	328.40	320.25	316.35	312.25	308.90
27/32	.8438	6	2 1/2	9 1/2	.6245	242827	309.70	.8161 - .8470	358.30	334.00	325.80	321.95	317.75	314.60
7/8	.8750	6	2 5/8	10	.7495	242828	326.60	.8471 - .8780	376.85	351.70	343.25	339.25	334.85	331.40
29/32	.9062	6	2 5/8	10	.7495	242829	345.80	.8781 - .9090	396.05	370.80	362.45	358.45	354.20	350.80
15/16	.9375	8	2 5/8	10	.7495	242830	362.70	.9091 - .9410	412.85	387.80	379.30	375.30	370.90	367.60
31/32	.9688	8	2 5/8	10	.7495	242831	363.65	.9411 - .9720	413.80	388.70	380.20	376.20	371.85	368.50
1	1.0000	8	2 3/4	10 1/2	.8745	242832	364.15	.9721 - 1.0030	414.35	389.20	380.80	376.75	372.35	368.95
1 1/16	1.0625	8	2 3/4	10 1/2	.8745	242834	384.95	1.0031 - 1.0660	435.15	410.00	401.55	397.55	393.25	389.80
1 1/8	1.1250	8	2 7/8	11	.8745	242836	386.60	1.0661 - 1.1280	436.85	411.60	403.25	399.20	394.95	391.50
1 3/16	1.1875	8	2 7/8	11	.9995	242838	402.65	1.1281 - 1.1905	452.65	427.50	419.15	415.15	410.90	407.45
1 1/4	1.2500	8	3	11 1/2	.9995	242840	407.85	1.1906 - 1.2530	458.10	432.90	424.55	420.50	416.15	412.75
1 5/16	1.3125	8	3	11 1/2	.9995	242842	419.65	1.2531 - 1.3155	469.85	444.70	436.15	432.20	427.95	424.55
1 3/8	1.3750	8	3 1/4	12	.9995	242844	436.40	1.3156 - 1.3780	486.85	461.65	453.10	449.20	444.90	441.45
1 7/16	1.4375	8	3 1/4	12	.9995	242846	450.10	1.3781 - 1.4405	500.45	475.25	466.85	462.85	458.60	455.15
1 1/2	1.5000	8	3 1/2	12 1/2	1.2495	242848	465.30	1.4406 - 1.5030	515.45	490.45	481.90	477.90	473.60	470.20

*1/2" Carbide Length

**Quantities of 15 or more: price of fractional size in same size range.



CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT FLUTES & SHANK

TYPE 2400 - METRIC



NOTE: Tool diameter in millimeters (mm); all other dimensions in inches.

TOOL DIAMETER		TYPE 2400 METRIC EDP NO.	METRIC PRICE	DIMENSIONS					SPECIAL METRIC SIZE RANGE	PRICE EACH - FINISHED TO METRIC SIZE						
mm	INCH			SHANK DIAM.	NO. OF FLUTES	LENGTH				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14	OVER 14
		FLT	CAR-BIDE			OVER-ALL										
4.0	.1575	2400040	\$66.35	.151	4	1	1/2	4	3.962 -4.493	\$100.25	\$77.75	\$70.15	\$66.40	\$62.70	\$59.40	\$55.20
4.5	.1772	2400045	61.80	1/64	4	1 1/8	1/2	4 1/2	4.494 -5.182	94.75	72.85	65.55	61.90	58.10	55.15	50.90
5.0	.1969	2400050	61.80	1/64	4	1 1/8	1/2	4 1/2	-	-	-	-	-	-	-	
5.5	.2165	2400055	61.80	1/64	4	1 1/4	1/2	5	5.183 -5.613	94.75	72.85	65.55	61.90	58.10	55.15	50.90
6.0	.2362	2400060	64.60	7/64	4	1 1/2	1/2	6	5.614 -6.045	97.60	75.65	68.20	64.70	60.90	57.85	53.65
6.3	.2480	2400063	61.80	1/64	4	1 1/2	1/2	6	6.046 -6.426	94.75	72.85	65.55	61.90	58.10	55.15	50.90
6.5	.2559	2400065	62.75	1/64	4	1 1/2	1/2	6	6.427 -7.214	95.90	73.80	66.50	62.85	59.20	56.05	51.85
7.0	.2756	2400070	62.75	1/64	4	1 1/2	1/2	6	-	-	-	-	-	-	-	
7.5	.2953	2400075	62.75	9/64	4	1 1/2	1/2	6	7.215 -8.001	95.90	73.80	66.50	62.85	59.20	56.05	51.85
8.0	.3150	2400080	62.75	9/64	4	1 1/2	1/2	6	-	-	-	-	-	-	-	
8.5	.3346	2400085	64.35	9/64	4	1 1/2	5/8	6	8.002 -8.814	97.55	75.55	68.15	64.60	60.85	57.80	53.55
9.0	.3543	2400090	64.35	5/16	4	1 3/4	5/8	7	8.815 -9.601	97.55	75.55	68.15	64.60	60.85	57.80	53.55
9.5	.3740	2400095	64.35	5/16	4	1 3/4	5/8	7	-	-	-	-	-	-	-	
10.0	.3937	2400100	66.80	5/16	4	1 3/4	5/8	7	9.602 -10.389	99.90	77.90	70.65	67.00	63.30	60.30	56.00
10.5	.4134	2400105	70.25	3/8	4	1 3/4	5/8	7	10.390 -11.201	103.40	81.45	74.15	70.45	66.80	63.80	59.45
11.0	.4331	2400110	70.25	3/8	4	1 3/4	5/8	7	-	-	-	-	-	-	-	
11.5	.4528	2400115	71.10	3/8	4	1 3/4	5/8	7	11.202 -11.989	104.20	82.30	74.90	71.40	67.55	64.60	60.40
12.0	.4724	2400120	83.35	7/16	6	2	5/8	8	11.990 -12.776	119.80	95.55	87.50	83.65	79.55	76.15	71.50
12.5	.4921	2400125	83.35	7/16	6	2	5/8	8	-	-	-	-	-	-	-	
13.0	.5118	2400130	89.35	7/16	6	2	5/8	8	12.777 -13.564	125.70	101.50	93.45	89.45	85.45	82.05	77.45
13.5	.5315	2400135	89.35	7/16	6	2	5/8	8	-	-	-	-	-	-	-	
14.0	.5512	2400140	89.35	7/16	6	2	5/8	8	13.565 -14.376	125.70	101.50	93.45	89.45	85.45	82.05	77.45
14.5	.5709	2400145	92.25	7/16	6	2	5/8	8	14.377 -15.164	128.70	104.50	96.35	92.45	88.50	85.10	80.35
15.0	.5906	2400150	92.25	7/16	6	2	5/8	8	-	-	-	-	-	-	-	
15.5	.6102	2400155	92.25	9/16	6	2 1/4	5/8	9	15.165 -15.951	128.70	104.50	96.35	92.45	88.50	85.10	80.35
16.0	.6299	2400160	93.55	9/16	6	2 1/4	5/8	9	15.952 -16.739	130.10	105.85	97.65	93.70	89.75	86.35	81.60
16.5	.6496	2400165	93.55	9/16	6	2 1/4	5/8	9	-	-	-	-	-	-	-	
17.0	.6693	2400170	93.55	9/16	6	2 1/4	5/8	9	16.740 -17.551	130.10	105.85	97.65	93.70	89.75	86.35	81.60
17.5	.6890	2400175	93.55	9/16	6	2 1/4	5/8	9	-	-	-	-	-	-	-	
18.0	.7087	2400180	97.25	9/16	6	2 1/4	5/8	9	17.552 -18.339	133.65	109.50	101.40	97.50	93.40	90.00	85.30
18.5	.7283	2400185	97.25	5/8	6	2 1/2	3/4	9 1/2	18.340 -19.126	133.65	109.50	101.40	97.50	93.40	90.00	85.30
19.0	.7480	2400190	97.25	5/8	6	2 1/2	3/4	9 1/2	-	-	-	-	-	-	-	
19.5	.7677	2400195	99.90	5/8	6	2 1/2	3/4	9 1/2	19.127 -19.914	136.25	112.25	104.10	100.05	96.10	92.65	88.05
20.0	.7874	2400200	99.90	5/8	6	2 1/2	3/4	9 1/2	19.915 -20.726	136.25	112.25	104.10	100.05	96.10	92.65	88.05
20.5	.8071	2400205	99.90	5/8	6	2 1/2	3/4	9 1/2	-	-	-	-	-	-	-	
21.0	.8268	2400210	103.30	5/8	6	2 1/2	3/4	9 1/2	20.727 -21.514	139.70	115.40	107.40	103.40	99.35	96.10	91.45
21.5	.8465	2400215	103.30	5/8	6	2 1/2	3/4	9 1/2	-	-	-	-	-	-	-	
22.0	.8661	2400220	103.30	3/4	6	2 5/8	3/4	10	21.515 -22.301	139.70	115.40	107.40	103.40	99.35	96.10	91.45
22.5	.8858	2400225	122.10	3/4	6	2 5/8	3/4	10	22.302 -23.089	159.85	134.75	126.35	122.25	118.10	114.60	109.70
23.0	.9055	2400230	122.10	3/4	6	2 5/8	3/4	10	-	-	-	-	-	-	-	
23.5	.9252	2400235	122.10	3/4	8	2 5/8	3/4	10	23.090 -23.901	159.85	134.75	126.35	122.25	118.10	114.60	109.70
24.0	.9449	2400240	127.30	3/4	8	2 5/8	3/4	10	23.902 -24.689	165.00	139.85	131.45	127.40	123.25	119.75	114.85
24.5	.9646	2400245	127.30	3/4	8	2 5/8	3/4	10	-	-	-	-	-	-	-	
25.0	.9843	2400250	127.30	7/8	8	2 3/4	3/4	10 1/2	24.690 -25.476	165.00	139.85	131.45	127.40	123.25	119.75	114.85
25.5	1.0039	2400255	130.20	7/8	8	2 3/4	3/4	10 1/2	25.477 -27.076	166.55	142.45	134.40	130.40	126.45	123.20	118.35
26.0	1.0236	2400260	130.20	7/8	8	2 3/4	3/4	10 1/2	-	-	-	-	-	-	-	
27.0	1.0630	2400270	130.20	7/8	8	2 3/4	3/4	10 1/2	-	-	-	-	-	-	-	
28.0	1.1024	2400280	139.60	7/8	8	2 7/8	7/8	11	27.077 -28.651	175.75	151.70	143.60	139.70	135.75	132.35	127.70
29.0	1.1417	2400290	145.80	1	8	2 7/8	7/8	11	28.652 -30.239	182.00	158.10	149.85	146.00	141.90	138.65	133.95
30.0	1.1811	2400300	145.80	1	8	2 7/8	7/8	11	-	-	-	-	-	-	-	
31.0	1.2205	2400310	153.25	1	8	3	7/8	11 1/2	30.240 -31.826	189.50	165.45	157.40	153.50	149.45	146.15	141.60
32.0	1.2598	2400320	160.30	1	8	3	7/8	11 1/2	31.827 -33.414	196.65	172.70	164.50	160.65	156.60	153.15	148.50
33.0	1.2992	2400330	160.30	1	8	3	7/8	11 1/2	-	-	-	-	-	-	-	
34.0	1.3386	2400340	169.30	1	8	3 1/4	7/8	12	33.415 -35.001	205.40	181.50	173.30	169.45	165.40	162.00	157.40
35.0	1.3780	2400350	169.30	1	8	3 1/4	7/8	12	-	-	-	-	-	-	-	
36.0	1.4173	2400360	186.80	1 1/4	8	3 1/4	7/8	12	35.002 -36.589	223.05	198.95	190.90	186.90	182.95	179.55	175.00
37.0	1.4567	2400370	196.45	1 1/4	8	3 1/2	7/8	12 1/2	36.590 -38.176	232.80	208.70	200.60	196.70	192.70	189.35	184.75

Modified tool diameters are available up to 50mm - contact us for price.



CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT POLISHED FLUTES - STRAIGHT SHANK



TYPE 2400 - FINISHED FRACTIONAL SIZES

Straight shank and straight polished flutes.
Carbide tips brazed to one piece hardened alloy steel bodies.

Cutting diameter tolerance plus .0003", minus .0000".

USE:

For all general reaming of steel, cast iron, non-ferrous metals, plastics and non-metals.

OPTIONS:

Intermediate decimal sizes (priced as indicated in extended table below).

Closer tolerances (see table on next page).

Cutting diameter reduced for small steps or pilot.

Radius end or end chamfer other than 45°.

End cutting.

Rose grind (twice normal back taper).

Short shank or undersize shank diameter.

Flat on shank or tanged shank.

Semi-finished type reamers in stock (see page 47).

TOOL DIAMETER		NO. OF FLUTES	LENGTH		SHANK DIAM.	TYPE 2400 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL		FLUTE	OVER-ALL					1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
5/32	.1562	4	1	4	.151	240005	\$51.30	0.1560 - 0.1769	\$97.00	\$73.80	\$66.35	\$62.70	\$58.80	\$55.75
11/64	.1719	4	1	4	.151	24001719	51.30	-	-	-	-	-	-	-
3/16	.1875	4	1 1/8	4 1/2	11/64	240006	47.10	0.1770 - 0.2040	91.05	69.00	61.80	58.10	54.40	51.40
3/16	.1875	4	1 1/4	5	11/64	240086	49.80	0.1770 - 0.2040	93.85	71.80	64.60	60.90	57.15	54.20
13/64	.2031	4	1 1/8	4 1/2	11/64	24002031	49.80	-	-	-	-	-	-	-
7/32	.2188	4	1 1/4	5	13/64	240007	47.10	0.2041 - 0.2210	91.05	69.00	61.80	58.10	54.40	51.40
15/64	.2344	4	1 1/2	6	7/32	24002344	49.80	0.2211 - 0.2380	93.85	71.80	64.60	60.90	57.15	54.20
1/4	.2500	4	1 1/2	6	15/64	240008	47.10	0.2381 - 0.2530	91.05	69.00	61.80	58.10	54.40	51.40
17/64	.2656	4	1 1/2	6	15/64	24002656	50.95	-	-	-	-	-	-	-
9/32	.2812	4	1 1/2	6	15/64	240009	48.15	0.2531 - 0.2840	92.10	70.10	62.75	59.20	55.35	52.40
19/64	.2969	4	1 1/2	6	9/32	24002969	50.95	-	-	-	-	-	-	-
5/16	.3125	4	1 1/2	6	9/32	240010	48.15	0.2841 - 0.3150	92.10	70.10	62.75	59.20	55.35	52.40
21/64	.3281	4	1 1/2	6	9/32	24003281	52.90	-	-	-	-	-	-	-
11/32	.3438	4	1 1/2	6	9/32	240011	49.75	0.3151 - 0.3470	93.80	71.70	64.35	60.85	57.10	54.10
23/64	.3594	4	1 3/4	7	5/16	24003594	52.90	-	-	-	-	-	-	-
3/8	.3750	4	1 3/4	7	5/16	240012	49.75	0.3471 - 0.3780	93.80	71.70	64.35	60.85	57.10	54.10
25/64	.3906	4	1 3/4	7	5/16	24003906	55.55	-	-	-	-	-	-	-
13/32	.4062	4	1 3/4	7	5/16	240013	52.30	0.3781 - 0.4090	96.20	74.20	66.80	63.30	59.45	56.60
27/64	.4219	4	1 3/4	7	3/8	24004219	59.15	-	-	-	-	-	-	-
7/16	.4375	4	1 3/4	7	3/8	240014	55.85	0.4091 - 0.4410	99.75	77.75	70.25	66.80	62.95	60.10
29/64	.4531	4	1 3/4	7	3/8	24004531	60.05	-	-	-	-	-	-	-
15/32	.4688	4	1 3/4	7	3/8	240015	56.60	0.4411 - 0.4720	100.60	78.50	71.10	67.55	63.85	60.85
31/64	.4844	6	2	8	7/16	24004844	64.90	-	-	-	-	-	-	-
1/2	.5000	6	2	8	7/16	240016	67.30	0.4721 - 0.5030	115.75	91.55	83.35	79.55	75.30	72.00
33/64	.5156	6	2	8	7/16	24005156	73.20	-	-	-	-	-	-	-
17/32	.5312	6	2	8	7/16	240017	73.20	0.5031 - 0.5340	121.75	97.50	89.35	85.45	81.25	78.00
35/64	.5469	6	2	8	7/16	24005469	73.20	-	-	-	-	-	-	-
9/16	.5625	6	2	8	7/16	240018	73.20	0.5341 - 0.5660	121.75	97.50	89.35	85.45	81.25	78.00
37/64	.5781	6	2	8	7/16	24005781	76.20	-	-	-	-	-	-	-
19/32	.5938	6	2	8	7/16	240019	76.20	0.5661 - 0.5970	124.70	100.35	92.25	88.50	84.20	81.10
39/64	.6094	6	2 1/4	9	9/16	24006094	76.20	-	-	-	-	-	-	-
5/8	.6250	6	2 1/4	9	9/16	240020	76.20	0.5971 - 0.6280	124.70	100.35	92.25	88.50	84.20	81.10
41/64	.6406	6	2 1/4	9	9/16	24006406	77.60	-	-	-	-	-	-	-
21/32	.6562	6	2 1/4	9	9/16	240021	77.60	0.6281 - 0.6590	125.90	101.55	93.55	89.75	85.50	82.30
43/64	.6719	6	2 1/4	9	9/16	24006719	77.60	-	-	-	-	-	-	-
11/16	.6875	6	2 1/4	9	9/16	240022	77.60	0.6591 - 0.6910	125.90	101.55	93.55	89.75	85.50	82.30
45/64	.7031	6	2 1/4	9	9/16	24007031	81.20	-	-	-	-	-	-	-
23/32	.7188	6	2 1/4	9	9/16	240023	81.20	0.6911 - 0.7220	129.55	105.45	97.25	93.40	89.20	85.95
47/64	.7344	6	2 1/2	9 1/2	5/8	24007344	81.20	-	-	-	-	-	-	-
3/4	.7500	6	2 1/2	9 1/2	5/8	240024	81.20	0.7221 - 0.7530	129.55	105.45	97.25	93.40	89.20	85.95

*Quantities of 15 or more: price of fractional size in same size range.

TOOL DIAMETER		NO. OF FLUTES	LENGTH		SHANK DIAM.	TYPE 2400 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL		FLUTE	OVER-ALL					1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
.49/64	.7656	6	2 1/2	9 1/2	5/8	24007656	\$83.80	-	-	-	-	-	-	-
.25/32	.7812	6	2 1/2	9 1/2	5/8	240025	83.80	0.7531 - 0.7840	\$132.20	\$107.95	\$99.90	\$96.10	\$91.85	\$88.60
.5/64	.7969	6	2 1/2	9 1/2	5/8	24007969	83.80	-	-	-	-	-	-	-
.13/16	.8125	6	2 1/2	9 1/2	5/8	240026	83.80	0.7841 - 0.8160	132.20	107.95	99.90	96.10	91.85	88.60
.53/64	.8281	6	2 1/2	9 1/2	5/8	24008281	87.20	-	-	-	-	-	-	-
.27/32	.8438	6	2 1/2	9 1/2	5/8	240027	87.20	0.8161 - 0.8470	135.65	111.35	103.30	99.35	95.20	91.95
.55/64	.8594	6	2 5/8	10	3/4	24008594	87.20	-	-	-	-	-	-	-
.7/8	.8750	6	2 5/8	10	3/4	240028	90.50	0.8471 - 0.8780	140.65	115.60	107.20	103.20	98.75	95.35
.57/64	.8906	6	2 5/8	10	3/4	24008906	105.45	-	-	-	-	-	-	-
.29/32	.9062	6	2 5/8	10	3/4	240029	105.45	0.8781 - 0.9090	155.65	130.40	122.10	118.10	113.70	110.30
.59/64	.9219	8	2 5/8	10	3/4	24009219	105.45	-	-	-	-	-	-	-
.15/16	.9375	8	2 5/8	10	3/4	240030	105.45	0.9091 - 0.9410	155.65	130.40	122.10	118.10	113.70	110.30
.61/64	.9531	8	2 5/8	10	3/4	24009531	110.45	-	-	-	-	-	-	-
.31/32	.9688	8	2 5/8	10	3/4	240031	110.45	0.9411 - 0.9720	160.80	135.55	127.30	123.25	118.80	115.40
.63/64	.9844	8	2 3/4	10 1/2	7/8	24009844	110.45	-	-	-	-	-	-	-
1	1.0000	8	2 3/4	10 1/2	7/8	240032	110.45	0.9721 - 1.0030	160.80	135.55	127.30	123.25	118.80	115.40
1 1/16	1.0625	8	2 3/4	10 1/2	7/8	240034	114.25	1.0031 - 1.0660	162.50	138.35	130.20	126.45	122.25	118.95
1 1/8	1.1250	8	2 7/8	11	7/8	240036	123.45	1.0661 - 1.1280	171.70	147.60	139.60	135.75	131.45	128.30
1 3/16	1.1875	8	2 7/8	11	1	240038	129.90	1.1281 - 1.1905	178.00	153.90	145.80	141.90	137.90	134.50
1 1/4	1.2500	8	3	11 1/2	1	240040	137.25	1.1906 - 1.2530	185.50	161.45	153.25	149.45	145.30	141.95
1 5/16	1.3125	8	3	11 1/2	1	240042	144.45	1.2531 - 1.3155	192.60	168.45	160.30	156.60	152.35	149.20
1 3/8	1.3750	8	3 1/4	12	1	240044	153.25	1.3156 - 1.3780	201.30	177.35	169.30	165.40	161.35	158.10
1 7/16	1.4375	8	3 1/4	12	1 1/4	240046	170.75	1.3781 - 1.4405	219.00	194.90	186.80	182.95	178.80	175.60
1 1/2	1.5000	8	3 1/2	12 1/2	1 1/4	240048	180.55	1.4406 - 1.5030	228.70	204.60	196.45	192.70	188.55	185.25
1 9/16	1.5625	8	3 1/2	12 1/2	1 1/4	240050	268.15	1.5031 - 1.5660	316.30	292.20	284.15	280.25	276.20	272.85
1 5/8	1.6250	8	3 3/4	13	1 1/4	240052	277.35	1.5661 - 1.6280	325.40	301.40	293.30	289.45	285.30	282.05
1 11/16	1.6875	8	3 3/4	13	1 1/4	240054	311.90	1.6281 - 1.6910	360.15	336.05	327.95	324.15	320.05	316.80
1 3/4	1.7500	10	4	13 1/2	1 1/4	240056	311.90	1.6911 - 1.7530	360.15	336.05	327.95	324.15	320.05	316.80
1 13/16	1.8125	10	4	13 1/2	1 1/2	240058	311.90	1.7531 - 1.8160	360.15	336.05	327.95	324.15	320.05	316.80
1 7/8	1.8750	10	4 1/4	14	1 1/2	240060	326.90	1.8161 - 1.8780	375.00	350.90	342.75	338.95	334.80	331.45
1 15/16	1.9375	10	4 1/4	14	1 1/2	240062	326.90	1.8781 - 1.9410	375.00	350.90	342.75	338.95	334.80	331.45
2	2.0000	12	4 1/4	14	1 1/2	240064	326.90	1.9411 - 2.0030	375.00	350.90	342.75	338.95	334.80	331.45

*Quantities of 15 or more: price of fractional size in same size range.

EXACT DECIMAL SIZE REAMERS -

For + .0002" tolerance add \$1.00 per tool. For + .0001" tolerance add \$3.00 per tool.

CARBIDE TIPPED OVER & UNDER SIZE REAMERS

TYPE 2478 - STRAIGHT FLUTE & SHANK

Cutting diameter tolerance plus .0002" minus .0000".

USE:

These precision ground carbide tipped reamers are very convenient for finishing accurate holes in most materials.

TOOL DIAMETER	SHANK DIAM.	OVERALL LENGTH	NO. OF FLUTES	TYPE 2478 EDP NO.	PRICE
.1865	1/64	4 1/2	4	247818	\$59.25
.1885	1/64	4 1/2	4	247819	59.25
.2490	15/64	6	4	247824	59.25
.2510	15/64	6	4	247825	59.25
.3115	9/32	6	4	247831	60.55
.3135	9/32	6	4	247832	60.55
.3740	5/16	7	4	247837	62.80
.3760	5/16	7	4	247838	62.80
.4365	3/8	7	4	247843	70.20
.4385	3/8	7	4	247844	70.20
.4990	7/16	8	6	247849	76.90
.5010	7/16	8	6	247850	76.90
.6240	9/16	9	6	247862	92.25
.6260	9/16	9	6	247863	92.25
.7490	5/8	9 1/2	6	247874	97.25
.7510	5/8	9 1/2	6	247875	97.25
.8740	3/4	10	6	247886	103.30
.8760	3/4	10	6	247887	107.20
.9990	7/8	10 1/2	8	247898	127.35
1.0010	7/8	10 1/2	8	247899	122.05

CARBIDE TIPPED DOWEL PIN SIZE REAMERS

TYPE 2476 - STRAIGHT FLUTE & SHANK

Cutting diameter tolerance plus .0000" minus .0002".

USE:

These precision ground carbide tipped reamers accurately finish dowel pin holes in most materials and result in properly fitted dowel pins subjected to shearing strain - assuring accurate alignment. Should be used in pairs of .0005" and .0020" under fraction size — Note special minus .0002" tolerance.

TOOL DIAMETER	SHANK DIAM.	OVERALL LENGTH	NO. OF FLUTES	TYPE 2476 EDP NO.	PRICE
.1855	1/64	4 1/2	4	247617	\$59.25
.1870	1/64	4 1/2	4	247618	59.25
.2480	15/64	6	4	247623	59.25
.2495	15/64	6	4	247624	59.25
.3105	9/32	6	4	247630	60.55
.3120	9/32	6	4	247631	60.55
.3730	5/16	7	4	247636	62.80
.3745	5/16	7	4	247637	62.80
.4355	3/8	7	4	247642	70.20
.4370	3/8	7	4	247643	70.20
.4980	7/16	8	6	247648	76.90
.4995	7/16	8	6	247649	76.90
CASED SET OF ABOVE 12 REAMERS				247600	\$739.20



CHUCKING REAMERS

CARBIDE TIPPED - STOCKED - SPECIAL DECIMAL SIZES - TYPE 2400

NOTE: Dimension details and modifications listed on page 20.

TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE
.1560	24001560	\$66.35	.1860	24001860	\$61.80	.2160	24002160	\$61.80	.2460	24002460	\$61.80	.2760	24002760	\$62.75
.1565	24001565	66.35	.1865	247818	59.25	.2165	2400055	61.80	.2465	24002465	61.80	.2765	24002765	62.75
.1570	24001570	66.35	.1870	24001870	61.80	.2170	24002170	61.80	.2470	24002470	61.80	.2770	24002770	62.75
.1575	2400040	66.35	.1875	240006	47.10	.2175	24002175	61.80	.2475	24002475	61.80	.2775	24002775	62.75
.1580	24001580	66.35	.1880	24001880	61.80	.2180	24002180	61.80	.2480	2400063	61.80	.2780	24002780	62.75
.1585	24001585	66.35	.1885	247819	59.25	.2185	24002185	61.80	.2485	24002485	61.80	.2785	24002785	62.75
.1590	24001590	66.35	.1890	2400048	61.80	.2190	24002190	61.80	.2490	247824	59.25	.2790	24002790	62.75
.1595	24001595	66.35	.1895	24001895	61.80	.2195	24002195	61.80	.2495	24002495	61.80	.2795	2400071	62.75
.1600	24001600	66.35	.1900	24001900	61.80	.2200	24002200	61.80	.2500	240008	47.10	.2800	24002800	62.75
.1605	24001605	66.35	.1905	24001905	61.80	.2205	2400056	61.80	.2505	24002505	61.80	.2805	24002805	62.75
.1610	24001610	66.35	.1910	24001910	61.80	.2210	24002210	61.80	.2510	247825	59.25	.2810	24002810	62.75
.1615	24001615	66.35	.1915	24001915	61.80	.2215	24002215	64.60	.2515	24002515	61.80	.2815	24002815	62.75
.1620	24001620	66.35	.1920	24001920	61.80	.2220	24002220	64.60	.2520	2400064	61.80	.2820	24002820	62.75
.1625	24001625	66.35	.1925	24001925	61.80	.2225	24002225	64.60	.2525	24002525	61.80	.2825	24002825	62.75
.1630	24001630	66.35	.1930	24001930	61.80	.2230	24002230	64.60	.2530	24002530	61.80	.2830	24002830	62.75
.1635	24001635	66.35	.1935	24001935	61.80	.2235	24002235	64.60	.2535	24002535	62.75	.2835	2400072	62.75
.1640	24001640	66.35	.1940	24001940	61.80	.2240	24002240	64.60	.2540	24002540	62.75	.2840	24002840	62.75
.1645	24001645	66.35	.1945	24001945	61.80	.2245	24002245	64.60	.2545	24002545	62.75	.2845	24002845	62.75
.1650	24001650	66.35	.1950	24001950	61.80	.2250	24002250	64.60	.2550	24002550	62.75	.2850	24002850	62.75
.1655	24001655	66.35	.1955	24001955	61.80	.2255	24002255	64.60	.2555	24002555	62.75	.2855	24002855	62.75
.1660	24001660	66.35	.1960	24001960	61.80	.2260	24002260	64.60	.2560	24002560	62.75	.2860	24002860	62.75
.1665	24001665	66.35	.1965	24001965	61.80	.2265	24002265	64.60	.2565	24002565	62.75	.2865	24002865	62.75
.1670	24001670	66.35	.1970	24001970	61.80	.2270	24002270	64.60	.2570	24002570	62.75	.2870	24002870	62.75
.1675	24001675	66.35	.1975	24001975	61.80	.2275	24002275	64.60	.2575	24002575	62.75	.2875	24002875	62.75
.1680	24001680	66.35	.1980	24001980	61.80	.2280	24002280	64.60	.2580	24002580	62.75	.2880	24002880	62.75
.1685	24001685	66.35	.1985	24001985	61.80	.2285	24002285	64.60	.2585	24002585	62.75	.2885	24002885	62.75
.1690	24001690	66.35	.1990	24001990	61.80	.2290	24002290	64.60	.2590	24002590	62.75	.2890	24002890	62.75
.1695	24001695	66.35	.1995	24001995	61.80	.2295	24002295	64.60	.2595	24002595	62.75	.2895	24002895	62.75
.1700	24001700	66.35	.2000	24002000	61.80	.2300	24002300	64.60	.2600	24002600	62.75	.2900	24002900	62.75
.1705	24001705	66.35	.2005	24002005	61.80	.2305	24002305	64.60	.2605	24002605	62.75	.2905	24002905	62.75
.1710	24001710	66.35	.2010	24002010	61.80	.2310	24002310	64.60	.2610	24002610	62.75	.2910	24002910	62.75
.1715	24001715	66.35	.2015	24002015	61.80	.2315	24002315	64.60	.2615	24002615	62.75	.2915	24002915	62.75
.1720	24001720	66.35	.2020	24002020	61.80	.2320	24002320	64.60	.2620	24002620	62.75	.2920	24002920	62.75
.1725	24001725	66.35	.2025	24002025	61.80	.2325	24002325	64.60	.2625	24002625	62.75	.2925	24002925	62.75
.1730	24001730	66.35	.2030	24002030	61.80	.2330	24002330	64.60	.2630	24002630	62.75	.2930	24002930	62.75
.1735	24001735	66.35	.2035	24002035	61.80	.2335	24002335	64.60	.2635	24002635	62.75	.2935	24002935	62.75
.1740	24001740	66.35	.2040	24002040	61.80	.2340	24002340	64.60	.2640	24002640	62.75	.2940	24002940	62.75
.1745	24001745	66.35	.2045	24002045	61.80	.2345	24002345	64.60	.2645	24002645	62.75	.2945	24002945	62.75
.1750	24001750	66.35	.2050	24002050	61.80	.2350	24002350	64.60	.2650	24002650	62.75	.2950	24002950	62.75
.1755	24001755	66.35	.2055	24002055	61.80	.2355	24002355	64.60	.2655	24002655	62.75	.2955	24002955	62.75
.1760	24001760	66.35	.2060	24002060	61.80	.2360	24002360	64.60	.2660	24002660	62.75	.2960	24002960	62.75
.1765	24001765	66.35	.2065	24002065	61.80	.2365	24002365	64.60	.2665	24002665	62.75	.2965	24002965	62.75
.1770	24001770	61.80	.2070	24002070	61.80	.2370	24002370	64.60	.2670	24002670	62.75	.2970	24002970	62.75
.1775	24001775	61.80	.2075	24002075	61.80	.2375	24002375	64.60	.2675	24002675	62.75	.2975	24002975	62.75
.1780	24001780	61.80	.2080	24002080	61.80	.2380	24002380	64.60	.2680	24002680	62.75	.2980	24002980	62.75
.1785	24001785	61.80	.2085	24002085	61.80	.2385	24002385	61.80	.2685	24002685	62.75	.2985	24002985	62.75
.1790	24001790	61.80	.2090	24002090	61.80	.2390	24002390	61.80	.2690	24002690	62.75	.2990	24002990	62.75
.1795	24001795	61.80	.2095	24002095	61.80	.2395	24002395	61.80	.2695	24002695	62.75	.2995	24002995	62.75
.1800	24001800	61.80	.2100	24002100	61.80	.2400	24002400	61.80	.2700	24002700	62.75	.3000	24003000	62.75
.1805	24001805	61.80	.2105	24002105	61.80	.2405	24002405	61.80	.2705	24002705	62.75	.3005	24003005	62.75
.1810	24001810	61.80	.2110	24002110	61.80	.2410	24002410	61.80	.2710	24002710	62.75	.3010	24003010	62.75
.1815	24001815	61.80	.2115	24002115	61.80	.2415	24002415	61.80	.2715	24002715	62.75	.3015	24003015	62.75
.1820	24001820	61.80	.2120	24002120	61.80	.2420	24002420	61.80	.2720	24002720	62.75	.3020	24003020	62.75
.1825	24001825	61.80	.2125	24002125	61.80	.2425	24002425	61.80	.2725	24002725	62.75	.3025	24003025	62.75
.1830	24001830	61.80	.2130	24002130	61.80	.2430	24002430	61.80	.2730	24002730	62.75	.3030	24003030	62.75
.1835	24001835	61.80	.2135	24002135	61.80	.2435	24002435	61.80	.2735	24002735	62.75	.3035	24003035	62.75
.1840	24001840	61.80	.2140	24002140	61.80	.2440	24002440	61.80	.2740	24002740	62.75	.3040	24003040	62.75
.1845	24001845	61.80	.2145	24002145	61.80	.2445	24002445	61.80	.2745	24002745	62.75	.3045	24003045	62.75
.1850	2400047	61.80	.2150	24002150	61.80	.2450	24002450	61.80	.2750	24002750	62.75	.3050	24003050	62.75
.1855	24001855	61.80	.2155	24002155	61.80	.2455	24002455	61.80	.2755	24002755	62.75	.3055	24003055	62.75



CHUCKING REAMERS

CARBIDE TIPPED - STOCKED - SPECIAL DECIMAL SIZES - TYPE 2400

NOTE: Dimension details and modifications listed on page 20.

TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE
.3060	24003060	\$62.75	.3360	24003360	\$64.35	.3660	24003660	\$64.35	.3960	24003960	\$66.80	.4260	24004260	\$70.25
.3065	24003065	62.75	.3365	24003365	64.35	.3665	24003665	64.35	.3965	24003965	66.80	.4265	24004265	70.25
.3070	24003070	62.75	.3370	24003370	64.35	.3670	24003670	64.35	.3970	24003970	66.80	.4270	24004270	70.25
.3075	24003075	62.75	.3375	24003375	64.35	.3675	24003675	64.35	.3975	24003975	66.80	.4275	24004275	70.25
.3080	24003080	62.75	.3380	24003380	64.35	.3680	24003680	64.35	.3980	24003980	66.80	.4280	24004280	70.25
.3085	24003085	62.75	.3385	24003385	64.35	.3685	24003685	64.35	.3985	24003985	66.80	.4285	24004285	70.25
.3090	24003090	62.75	.3390	24003390	64.35	.3690	24003690	64.35	.3990	24003990	66.80	.4290	24004290	70.25
.3095	24003095	62.75	.3395	24003395	64.35	.3695	24003695	64.35	.3995	24003995	66.80	.4295	24004295	70.25
.3100	24003100	62.75	.3400	24003400	64.35	.3700	24003700	64.35	.4000	24004000	66.80	.4300	24004300	70.25
.3105	24003105	62.75	.3405	24003405	64.35	.3705	24003705	64.35	.4005	24004005	66.80	.4305	24004305	70.25
.3110	2400079	62.75	.3410	24003410	64.35	.3710	24003710	64.35	.4010	24004010	66.80	.4310	24004310	70.25
.3115	247831	60.55	.3415	24003415	64.35	.3715	24003715	64.35	.4015	24004015	66.80	.4315	24004315	70.25
.3120	24003120	62.75	.3420	24003420	64.35	.3720	24003720	64.35	.4020	24004020	66.80	.4320	24004320	70.25
.3125	240010	48.15	.3425	2400087	64.35	.3725	24003725	64.35	.4025	24004025	66.80	.4325	24004325	70.25
.3130	24003130	62.75	.3430	24003430	64.35	.3730	24003730	64.35	.4030	24004030	66.80	.4330	24004330	70.25
.3135	247832	60.55	.3435	24003435	64.35	.3735	24003735	64.35	.4035	24004035	66.80	.4335	24004335	70.25
.3140	24003140	62.75	.3440	24003440	64.35	.3740	247837	62.80	.4040	24004040	66.80	.4340	24004340	70.25
.3145	24003145	62.75	.3445	24003445	64.35	.3745	24003745	64.35	.4045	24004045	66.80	.4345	24004345	70.25
.3150	2400080	62.75	.3450	24003450	64.35	.3750	240012	49.75	.4050	24004050	66.80	.4350	24004350	70.25
.3155	24003155	64.35	.3455	24003455	64.35	.3755	24003755	64.35	.4055	2400103	66.80	.4355	24004355	70.25
.3160	24003160	64.35	.3460	24003460	64.35	.3760	247838	62.80	.4060	24004060	66.80	.4360	24004360	70.25
.3165	24003165	64.35	.3465	2400088	64.35	.3765	24003765	64.35	.4065	24004065	66.80	.4365	247843	70.20
.3170	24003170	64.35	.3470	24003470	64.35	.3770	24003770	64.35	.4070	24004070	66.80	.4370	2400111	70.25
.3175	24003175	64.35	.3475	24003475	64.35	.3775	24003775	64.35	.4075	24004075	66.80	.4375	240014	55.85
.3180	24003180	64.35	.3480	24003480	64.35	.3780	2400096	64.35	.4080	24004080	66.80	.4380	24004380	70.25
.3185	24003185	64.35	.3485	24003485	64.35	.3785	24003785	66.80	.4085	24004085	66.80	.4385	247844	70.20
.3190	24003190	64.35	.3490	24003490	64.35	.3790	24003790	66.80	.4090	24004090	66.80	.4390	24004390	70.25
.3195	24003195	64.35	.3495	24003495	64.35	.3795	24003795	66.80	.4095	24004095	70.25	.4395	24004395	70.25
.3200	24003200	64.35	.3500	24003500	64.35	.3800	24003800	66.80	.4100	24004100	70.25	.4400	24004400	70.25
.3205	24003205	64.35	.3505	24003505	64.35	.3805	24003805	66.80	.4105	24004105	70.25	.4405	24004405	70.25
.3210	24003210	64.35	.3510	24003510	64.35	.3810	24003810	66.80	.4110	24004110	70.25	.4410	24004410	70.25
.3215	24003215	64.35	.3515	24003515	64.35	.3815	24003815	66.80	.4115	24004115	70.25	.4415	24004415	71.10
.3220	24003220	64.35	.3520	24003520	64.35	.3820	24003820	66.80	.4120	24004120	70.25	.4420	24004420	71.10
.3225	24003225	64.35	.3525	24003525	64.35	.3825	24003825	66.80	.4125	24004125	70.25	.4425	24004425	71.10
.3230	24003230	64.35	.3530	24003530	64.35	.3830	24003830	66.80	.4130	24004130	70.25	.4430	24004430	71.10
.3235	24003235	64.35	.3535	24003535	64.35	.3835	24003835	66.80	.4135	24004135	70.25	.4435	24004435	71.10
.3240	24003240	64.35	.3540	24003540	64.35	.3840	24003840	66.80	.4140	24004140	70.25	.4440	24004440	71.10
.3245	24003245	64.35	.3545	24003545	64.35	.3845	24003845	66.80	.4145	24004145	70.25	.4445	24004445	71.10
.3250	24003250	64.35	.3550	24003550	64.35	.3850	24003850	66.80	.4150	24004150	70.25	.4450	24004450	71.10
.3255	24003255	64.35	.3555	24003555	64.35	.3855	24003855	66.80	.4155	24004155	70.25	.4455	24004455	71.10
.3260	24003260	64.35	.3560	24003560	64.35	.3860	24003860	66.80	.4160	24004160	70.25	.4460	24004460	71.10
.3265	24003265	64.35	.3565	24003565	64.35	.3865	24003865	66.80	.4165	24004165	70.25	.4465	24004465	71.10
.3270	24003270	64.35	.3570	24003570	64.35	.3870	24003870	66.80	.4170	24004170	70.25	.4470	24004470	71.10
.3275	24003275	64.35	.3575	24003575	64.35	.3875	24003875	66.80	.4175	24004175	70.25	.4475	24004475	71.10
.3280	24003280	64.35	.3580	24003580	64.35	.3880	24003880	66.80	.4180	24004180	70.25	.4480	24004480	71.10
.3285	24003285	64.35	.3585	24003585	64.35	.3885	24003885	66.80	.4185	24004185	70.25	.4485	24004485	71.10
.3290	24003290	64.35	.3590	24003590	64.35	.3890	24003890	66.80	.4190	24004190	70.25	.4490	24004490	71.10
.3295	24003295	64.35	.3595	24003595	64.35	.3895	24003895	66.80	.4195	24004195	70.25	.4495	24004495	71.10
.3300	24003300	64.35	.3600	24003600	64.35	.3900	24003900	66.80	.4200	24004200	70.25	.4500	24004500	71.10
.3305	24003305	64.35	.3605	24003605	64.35	.3905	24003905	66.80	.4205	24004205	70.25	.4505	24004505	71.10
.3310	24003310	64.35	.3610	24003610	64.35	.3910	24003910	66.80	.4210	24004210	70.25	.4510	24004510	71.10
.3315	24003315	64.35	.3615	24003615	64.35	.3915	24003915	66.80	.4215	24004215	70.25	.4515	24004515	71.10
.3320	24003320	64.35	.3620	24003620	64.35	.3920	24003920	66.80	.4220	24004220	70.25	.4520	24004520	71.10
.3325	24003325	64.35	.3625	24003625	64.35	.3925	24003925	66.80	.4225	24004225	70.25	.4525	24004525	71.10
.3330	24003330	64.35	.3630	24003630	64.35	.3930	24003930	66.80	.4230	24004230	70.25	.4530	24004530	71.10
.3335	24003335	64.35	.3635	24003635	64.35	.3935	24003935	66.80	.4235	24004235	70.25	.4535	24004535	71.10
.3340	24003340	64.35	.3640	24003640	64.35	.3940	24003940	66.80	.4240	24004240	70.25	.4540	24004540	71.10
.3345	24003345	64.35	.3645	24003645	64.35	.3945	24003945	66.80	.4245	24004245	70.25	.4545	24004545	71.10
.3350	24003350	64.35	.3650	24003650	64.35	.3950	24003950	66.80	.4250	24004250	70.25	.4550	24004550	71.10
.3355	24003355	64.35	.3655	24003655	64.35	.3955	24003955	66.80	.4255	24004255	70.25	.4555	24004555	71.10



CHUCKING REAMERS

CARBIDE TIPPED - STOCKED - SPECIAL DECIMAL SIZES - TYPE 2400

NOTE: Dimension details and modifications listed on page 20.

TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE
.4560	24004560	\$71.10	.4860	24004860	\$83.35	.5160	24005160	\$89.35	.5460	24005460	\$89.35	.5760	24005760	\$92.25
.4565	24004565	71.10	.4865	24004865	83.35	.5165	24005165	89.35	.5465	24005465	89.35	.5765	24005765	92.25
.4570	24004570	71.10	.4870	24004870	83.35	.5170	24005170	89.35	.5470	24005470	89.35	.5770	24005770	92.25
.4575	24004575	71.10	.4875	24004875	83.35	.5175	24005175	89.35	.5475	24005475	89.35	.5775	24005775	92.25
.4580	24004580	71.10	.4880	24004880	83.35	.5180	24005180	89.35	.5480	24005480	89.35	.5780	24005780	92.25
.4585	24004585	71.10	.4885	24004885	83.35	.5185	24005185	89.35	.5485	24005485	89.35	.5785	24005785	92.25
.4590	24004590	71.10	.4890	24004890	83.35	.5190	24005190	89.35	.5490	24005490	89.35	.5790	24005790	92.25
.4595	24004595	71.10	.4895	24004895	83.35	.5195	24005195	89.35	.5495	24005495	89.35	.5795	24005795	92.25
.4600	24004600	71.10	.4900	24004900	83.35	.5200	24005200	89.35	.5500	24005500	89.35	.5800	24005800	92.25
.4605	24004605	71.10	.4905	24004905	83.35	.5205	24005205	89.35	.5505	24005505	89.35	.5805	24005805	92.25
.4610	24004610	71.10	.4910	24004910	83.35	.5210	24005210	89.35	.5510	24005510	89.35	.5810	24005810	92.25
.4615	24004615	71.10	.4915	24004915	83.35	.5215	24005215	89.35	.5515	24005515	89.35	.5815	24005815	92.25
.4620	24004620	71.10	.4920	24004920	83.35	.5220	24005220	89.35	.5520	24005520	89.35	.5820	24005820	92.25
.4625	24004625	71.10	.4925	24004925	83.35	.5225	24005225	89.35	.5525	24005525	89.35	.5825	24005825	92.25
.4630	24004630	71.10	.4930	24004930	83.35	.5230	24005230	89.35	.5530	24005530	89.35	.5830	24005830	92.25
.4635	24004635	71.10	.4935	24004935	83.35	.5235	24005235	89.35	.5535	24005535	89.35	.5835	24005835	92.25
.4640	24004640	71.10	.4940	24004940	83.35	.5240	24005240	89.35	.5540	24005540	89.35	.5840	24005840	92.25
.4645	24004645	71.10	.4945	24004945	83.35	.5245	24005245	89.35	.5545	24005545	89.35	.5845	24005845	92.25
.4650	24004650	71.10	.4950	24004950	83.35	.5250	24005250	89.35	.5550	24005550	89.35	.5850	24005850	92.25
.4655	24004655	71.10	.4955	24004955	83.35	.5255	24005255	89.35	.5555	24005555	89.35	.5855	24005855	92.25
.4660	24004660	71.10	.4960	24004960	83.35	.5260	24005260	89.35	.5560	24005560	89.35	.5860	24005860	92.25
.4665	24004665	71.10	.4965	24004965	83.35	.5265	24005265	89.35	.5565	24005565	89.35	.5865	24005865	92.25
.4670	24004670	71.10	.4970	24004970	83.35	.5270	24005270	89.35	.5570	24005570	89.35	.5870	24005870	92.25
.4675	24004675	71.10	.4975	24004975	83.35	.5275	24005275	89.35	.5575	24005575	89.35	.5875	24005875	92.25
.4680	24004680	71.10	.4980	24004980	83.35	.5280	24005280	89.35	.5580	24005580	89.35	.5880	24005880	92.25
.4685	2400119	71.10	.4985	24004985	83.35	.5285	24005285	89.35	.5585	24005585	89.35	.5885	24005885	92.25
.4690	24004690	71.10	.4990	247849	76.90	.5290	24005290	89.35	.5590	24005590	89.35	.5890	24005890	92.25
.4695	24004695	71.10	.4995	24004995	83.35	.5295	24005295	89.35	.5595	24005595	89.35	.5895	24005895	92.25
.4700	24004700	71.10	.5000	240016	67.30	.5300	24005300	89.35	.5600	24005600	89.35	.5900	24005900	92.25
.4705	24004705	71.10	.5005	24005005	83.35	.5305	24005305	89.35	.5605	24005605	89.35	.5905	24005905	92.25
.4710	24004710	71.10	.5010	247850	76.90	.5310	24005310	89.35	.5610	24005610	89.35	.5910	24005910	92.25
.4715	24004715	71.10	.5015	24005015	83.35	.5315	2400135	89.35	.5615	24005615	89.35	.5915	24005915	92.25
.4720	24004720	71.10	.5020	24005020	83.35	.5320	24005320	89.35	.5620	24005620	89.35	.5920	24005920	92.25
.4725	24004725	83.35	.5025	24005025	83.35	.5325	24005325	89.35	.5625	240018	73.20	.5925	24005925	92.25
.4730	24004730	83.35	.5030	24005030	83.35	.5330	24005330	89.35	.5630	2400143	89.35	.5930	24005930	92.25
.4735	24004735	83.35	.5035	24005035	89.35	.5335	24005335	89.35	.5635	24005635	89.35	.5935	24005935	92.25
.4740	24004740	83.35	.5040	24005040	89.35	.5340	24005340	89.35	.5640	24005640	89.35	.5940	24005940	92.25
.4745	24004745	83.35	.5045	24005045	89.35	.5345	24005345	89.35	.5645	24005645	89.35	.5945	2400151	92.25
.4750	24004750	83.35	.5050	24005050	89.35	.5350	24005350	89.35	.5650	24005650	89.35	.5950	24005950	92.25
.4755	24004755	83.35	.5055	24005055	89.35	.5355	24005355	89.35	.5655	24005655	89.35	.5955	24005955	92.25
.4760	24004760	83.35	.5060	24005060	89.35	.5360	24005360	89.35	.5660	24005660	89.35	.5960	24005960	92.25
.4765	24004765	83.35	.5065	24005065	89.35	.5365	24005365	89.35	.5665	24005665	92.25	.5965	24005965	92.25
.4770	24004770	83.35	.5070	24005070	89.35	.5370	24005370	89.35	.5670	24005670	92.25	.5970	24005970	92.25
.4775	24004775	83.35	.5075	24005075	89.35	.5375	24005375	89.35	.5675	24005675	92.25	.5975	24005975	92.25
.4780	24004780	83.35	.5080	24005080	89.35	.5380	24005380	89.35	.5680	24005680	92.25	.5980	24005980	92.25
.4785	24004785	83.35	.5085	24005085	89.35	.5385	24005385	89.35	.5685	24005685	92.25	.5985	24005985	92.25
.4790	24004790	83.35	.5090	24005090	89.35	.5390	24005390	89.35	.5690	24005690	92.25	.5990	24005990	92.25
.4795	24004795	83.35	.5095	24005095	89.35	.5395	24005395	89.35	.5695	24005695	92.25	.5995	24005995	92.25
.4800	24004800	83.35	.5100	24005100	89.35	.5400	24005400	89.35	.5700	24005700	92.25	.6000	24006000	92.25
.4805	24004805	83.35	.5105	24005105	89.35	.5405	24005405	89.35	.5705	24005705	92.25	.6005	24006005	92.25
.4810	24004810	83.35	.5110	24005110	89.35	.5410	24005410	89.35	.5710	24005710	92.25	.6010	24006010	92.25
.4815	24004815	83.35	.5115	24005115	89.35	.5415	24005415	89.35	.5715	24005715	92.25	.6015	24006015	92.25
.4820	24004820	83.35	.5120	24005120	89.35	.5420	24005420	89.35	.5720	24005720	92.25	.6020	24006020	92.25
.4825	24004825	83.35	.5125	24005125	89.35	.5425	24005425	89.35	.5725	24005725	92.25	.6025	24006025	92.25
.4830	24004830	83.35	.5130	24005130	89.35	.5430	24005430	89.35	.5730	24005730	92.25	.6030	24006030	92.25
.4835	24004835	83.35	.5135	24005135	89.35	.5435	24005435	89.35	.5735	24005735	92.25	.6035	24006035	92.25
.4840	24004840	83.35	.5140	24005140	89.35	.5440	24005440	89.35	.5740	24005740	92.25	.6040	24006040	92.25
.4845	24004845	83.35	.5145	24005145	89.35	.5445	24005445	89.35	.5745	24005745	92.25	.6045	24006045	92.25
.4850	24004850	83.35	.5150	24005150	89.35	.5450	24005450	89.35	.5750	24005750	92.25	.6050	24006050	92.25
.4855	24004855	83.35	.5155	24005155	89.35	.5455	24005455	89.35	.5755	24005755	92.25	.6055	24006055	92.25



CHUCKING REAMERS

CARBIDE TIPPED - STOCKED - SPECIAL DECIMAL SIZES - TYPE 2400

NOTE: Dimension details and modifications listed on page 20.

TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE
.6060	24006060	\$92.25	.6360	24006360	\$93.55	.6660	24006660	\$93.55	.6960	24006960	\$97.25	.7260	24007260	\$97.25
.6065	24006065	92.25	.6365	24006365	93.55	.6665	24006665	93.55	.6965	24006965	97.25	.7265	24007265	97.25
.6070	24006070	92.25	.6370	24006370	93.55	.6670	24006670	93.55	.6970	24006970	97.25	.7270	24007270	97.25
.6075	24006075	92.25	.6375	24006375	93.55	.6675	24006675	93.55	.6975	24006975	97.25	.7275	24007275	97.25
.6080	24006080	92.25	.6380	24006380	93.55	.6680	24006680	93.55	.6980	24006980	97.25	.7280	24007280	97.25
.6085	24006085	92.25	.6385	24006385	93.55	.6685	24006685	93.55	.6985	24006985	97.25	.7285	24007285	97.25
.6090	24006090	92.25	.6390	24006390	93.55	.6690	24006690	93.55	.6990	24006990	97.25	.7290	24007290	97.25
.6095	24006095	92.25	.6395	24006395	93.55	.6695	24006695	93.55	.6995	24006995	97.25	.7295	24007295	97.25
.6100	24006100	92.25	.6400	24006400	93.55	.6700	24006700	93.55	.7000	24007000	97.25	.7300	24007300	97.25
.6105	24006105	92.25	.6405	24006405	93.55	.6705	24006705	93.55	.7005	24007005	97.25	.7305	24007305	97.25
.6110	24006110	92.25	.6410	24006410	93.55	.6710	24006710	93.55	.7010	24007010	97.25	.7310	24007310	97.25
.6115	24006115	92.25	.6415	24006415	93.55	.6715	24006715	93.55	.7015	24007015	97.25	.7315	24007315	97.25
.6120	24006120	92.25	.6420	24006420	93.55	.6720	24006720	93.55	.7020	24007020	97.25	.7320	24007320	97.25
.6125	24006125	92.25	.6425	24006425	93.55	.6725	24006725	93.55	.7025	24007025	97.25	.7325	24007325	97.25
.6130	24006130	92.25	.6430	24006430	93.55	.6730	24006730	93.55	.7030	24007030	97.25	.7330	24007330	97.25
.6135	24006135	92.25	.6435	24006435	93.55	.6735	24006735	93.55	.7035	24007035	97.25	.7335	24007335	97.25
.6140	24006140	92.25	.6440	24006440	93.55	.6740	24006740	93.55	.7040	24007040	97.25	.7340	24007340	97.25
.6145	24006145	92.25	.6445	24006445	93.55	.6745	24006745	93.55	.7045	24007045	97.25	.7345	24007345	97.25
.6150	24006150	92.25	.6450	24006450	93.55	.6750	24006750	93.55	.7050	24007050	97.25	.7350	24007350	97.25
.6155	24006155	92.25	.6455	24006455	93.55	.6755	24006755	93.55	.7055	24007055	97.25	.7355	24007355	97.25
.6160	24006160	92.25	.6460	24006460	93.55	.6760	24006760	93.55	.7060	24007060	97.25	.7360	24007360	97.25
.6165	24006165	92.25	.6465	24006465	93.55	.6765	24006765	93.55	.7065	24007065	97.25	.7365	24007365	97.25
.6170	24006170	92.25	.6470	24006470	93.55	.6770	24006770	93.55	.7070	24007070	97.25	.7370	24007370	97.25
.6175	24006175	92.25	.6475	24006475	93.55	.6775	24006775	93.55	.7075	24007075	97.25	.7375	24007375	97.25
.6180	24006180	92.25	.6480	24006480	93.55	.6780	24006780	93.55	.7080	24007080	97.25	.7380	24007380	97.25
.6185	24006185	92.25	.6485	24006485	93.55	.6785	24006785	93.55	.7085	24007085	97.25	.7385	24007385	97.25
.6190	24006190	92.25	.6490	24006490	93.55	.6790	24006790	93.55	.7090	24007090	97.25	.7390	24007390	97.25
.6195	24006195	92.25	.6495	24006495	93.55	.6795	24006795	93.55	.7095	24007095	97.25	.7395	24007395	97.25
.6200	24006200	92.25	.6500	24006500	93.55	.6800	24006800	93.55	.7100	24007100	97.25	.7400	24007400	97.25
.6205	24006205	92.25	.6505	24006505	93.55	.6805	24006805	93.55	.7105	24007105	97.25	.7405	24007405	97.25
.6210	24006210	92.25	.6510	24006510	93.55	.6810	24006810	93.55	.7110	24007110	97.25	.7410	24007410	97.25
.6215	24006215	92.25	.6515	24006515	93.55	.6815	24006815	93.55	.7115	24007115	97.25	.7415	24007415	97.25
.6220	2400158	92.25	.6520	24006520	93.55	.6820	24006820	93.55	.7120	24007120	97.25	.7420	24007420	97.25
.6225	24006225	92.25	.6525	24006525	93.55	.6825	24006825	93.55	.7125	24007125	97.25	.7425	24007425	97.25
.6230	24006230	92.25	.6530	24006530	93.55	.6830	24006830	93.55	.7130	24007130	97.25	.7430	24007430	97.25
.6235	24006235	92.25	.6535	2400166	93.55	.6835	24006835	93.55	.7135	24007135	97.25	.7435	24007435	97.25
.6240	247862	92.25	.6540	24006540	93.55	.6840	24006840	93.55	.7140	24007140	97.25	.7440	24007440	97.25
.6245	24006245	92.25	.6545	24006545	93.55	.6845	24006845	93.55	.7145	24007145	97.25	.7445	24007445	97.25
.6250	240020	76.20	.6550	24006550	93.55	.6850	2400174	93.55	.7150	24007150	97.25	.7450	24007450	97.25
.6255	24006255	92.25	.6555	24006555	93.55	.6855	24006855	93.55	.7155	24007155	97.25	.7455	24007455	97.25
.6260	247863	92.25	.6560	24006560	93.55	.6860	24006860	93.55	.7160	24007160	97.25	.7460	24007460	97.25
.6265	24006265	92.25	.6565	24006565	93.55	.6865	24006865	93.55	.7165	2400182	97.25	.7465	24007465	97.25
.6270	24006270	92.25	.6570	24006570	93.55	.6870	24006870	93.55	.7170	24007170	97.25	.7470	24007470	97.25
.6275	24006275	92.25	.6575	2400167	93.55	.6875	240022	77.60	.7175	24007175	97.25	.7475	24007475	97.25
.6280	24006280	92.25	.6580	24006580	93.55	.6880	24006880	93.55	.7180	24007180	97.25	.7480	2400190	97.25
.6285	24006285	93.55	.6585	24006585	93.55	.6885	24006885	93.55	.7185	24007185	97.25	.7485	24007485	97.25
.6290	24006290	93.55	.6590	24006590	93.55	.6890	2400175	93.55	.7190	24007190	97.25	.7490	247874	97.25
.6295	24006295	93.55	.6595	24006595	93.55	.6895	24006895	93.55	.7195	24007195	97.25	.7495	24007495	97.25
.6300	24006300	93.55	.6600	24006600	93.55	.6900	24006900	93.55	.7200	24007200	97.25	.7500	240024	81.20
.6305	24006305	93.55	.6605	24006605	93.55	.6905	24006905	93.55	.7205	2400183	97.25	.7505	24007505	97.25
.6310	24006310	93.55	.6610	24006610	93.55	.6910	24006910	93.55	.7210	24007210	97.25	.7510	247875	97.25
.6315	24006315	93.55	.6615	24006615	93.55	.6915	24006915	97.25	.7215	24007215	97.25	.7515	24007515	97.25
.6320	24006320	93.55	.6620	24006620	93.55	.6920	24006920	97.25	.7220	24007220	97.25	.7520	2400191	97.25
.6325	24006325	93.55	.6625	24006625	93.55	.6925	24006925	97.25	.7225	24007225	97.25	.7525	24007525	97.25
.6330	24006330	93.55	.6630	24006630	93.55	.6930	24006930	97.25	.7230	24007230	97.25	.7530	24007530	97.25
.6335	24006335	93.55	.6635	24006635	93.55	.6935	24006935	97.25	.7235	24007235	97.25	.7535	24007535	99.90
.6340	24006340	93.55	.6640	24006640	93.55	.6940	24006940	97.25	.7240	24007240	97.25	.7540	24007540	99.90
.6345	24006345	93.55	.6645	24006645	93.55	.6945	24006945	97.25	.7245	24007245	97.25	.7545	24007545	99.90
.6350	24006350	93.55	.6650	24006650	93.55	.6950	24006950	97.25	.7250	24007250	97.25	.7550	24007550	99.90
.6355	24006355	93.55	.6655	24006655	93.55	.6955	24006955	97.25	.7255	24007255	97.25	.7555	24007555	99.90



CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT POLISHED FLUTES - TAPER SHANK



TYPE 2402 - FINISHED FRACTIONAL SIZES

Taper shank and straight polished flutes.
 Carbide tips brazed to one piece hardened alloy steel bodies.
 Cutting diameter tolerance plus .0003", minus .0000".

USE:

For general reaming of steel, cast iron, non-ferrous metals, plastics and non-metals.

OPTIONS:

Intermediate decimal & metric sizes (priced as indicated in extended table below).
 Cutting diameter reduced for small steps or pilot.
 Radius end or end chamfer other than 45°.
 End cutting.
 Rose grind (twice normal back taper).
 Semi-finished type reamers in stock (see page 47).
 Closer tolerance.
 For +.0002" add \$1.00 per tool.
 For +.0001" add \$3.00 per tool.

TOOL DIAMETER		MORSE TAPER	NUMBER OF FLUTES	LENGTH		TYPE 2402 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL			FLUTE	OVERALL				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
1/4	.2500	1	4	1 1/2	6	240208	\$54.25	0.2381 - 0.2530	\$98.15	\$76.20	\$68.90	\$65.35	\$61.75	\$58.70
3/32	.2812	1	4	1 1/2	6	240209	55.30	0.2531 - 0.2840	99.25	77.20	69.95	66.35	62.70	59.55
1/16	.3125	1	4	1 1/2	6	240210	55.30	0.2841 - 0.3150	99.25	77.20	69.95	66.35	62.70	59.55
1/32	.3438	1	4	1 1/2	6	240211	57.40	0.3151 - 0.3470	101.35	79.30	71.85	68.35	64.70	61.80
3/8	.3750	1	4	1 3/4	7	240212	52.60	0.3471 - 0.3780	92.95	72.75	65.90	62.80	59.30	56.60
13/32	.4062	1	4	1 3/4	7	240213	60.15	0.3781 - 0.4090	104.15	82.05	74.70	71.30	67.45	64.50
7/16	.4375	1	4	1 3/4	7	240214	64.05	0.4091 - 0.4410	107.95	85.95	78.55	75.10	71.40	68.25
15/32	.4688	1	4	1 3/4	7	240215	65.70	0.4411 - 0.4720	109.70	87.70	80.30	76.80	73.05	70.10
1/2	.5000	1	6	2	8	240216	77.45	0.4721 - 0.5030	125.80	101.50	93.45	89.70	85.45	82.25
17/32	.5312	1	6	2	8	240217	83.65	0.5031 - 0.5340	132.05	107.70	99.60	95.85	91.60	88.20
9/16	.5625	1	6	2	8	240218	83.65	0.5341 - 0.5660	132.05	107.70	99.60	95.85	91.60	88.20
19/32	.5938	1	6	2	8	240219	87.65	0.5661 - 0.5970	136.05	111.75	103.65	99.80	95.55	92.40
5/8	.6250	2	6	2 1/4	9	240220	87.65	0.5971 - 0.6280	136.05	111.75	103.65	99.80	95.55	92.40
21/32	.6562	2	6	2 1/4	9	240221	89.20	0.6281 - 0.6590	137.55	113.35	105.25	101.40	97.25	93.90
11/16	.6875	2	6	2 1/4	9	240222	89.20	0.6591 - 0.6910	137.55	113.35	105.25	101.40	97.25	93.90
23/32	.7188	2	6	2 1/4	9	240223	93.25	0.6911 - 0.7220	141.70	117.35	109.25	105.50	101.35	98.00
3/4	.7500	2	6	2 1/2	9 1/2	240224	93.25	0.7221 - 0.7530	141.70	117.35	109.25	105.50	101.35	98.00
25/32	.7812	2	6	2 1/2	9 1/2	240225	96.15	0.7531 - 0.7840	144.55	120.25	112.25	108.40	104.15	100.85
13/16	.8125	2	6	2 1/2	9 1/2	240226	96.15	0.7841 - 0.8160	144.55	120.25	112.25	108.40	104.15	100.85
27/32	.8438	2	6	2 1/2	9 1/2	240227	100.30	0.8161 - 0.8470	148.65	124.35	116.35	112.45	108.40	104.95
7/8	.8750	2	6	2 5/8	10	240228	104.15	0.8471 - 0.8780	154.25	129.20	120.70	116.60	112.40	108.95
29/32	.9062	2	6	2 5/8	10	240229	122.10	0.8781 - 0.9090	172.25	147.05	138.70	134.65	130.35	126.95
15/16	.9375	3	8	2 5/8	10	240230	122.10	0.9091 - 0.9410	172.25	147.05	138.70	134.65	130.35	126.95
31/32	.9688	3	8	2 5/8	10	240231	127.30	0.9411 - 0.9720	177.40	152.20	143.70	139.80	135.50	132.10
1	1.0000	3	8	2 3/4	10 1/2	240232	127.30	0.9721 - 1.0030	177.40	152.20	143.70	139.80	135.50	132.10
1 1/16	1.0625	3	8	2 3/4	10 1/2	240234	174.65	1.0031 - 1.0660	222.90	198.80	190.75	186.85	182.65	179.40
1 1/8	1.1250	3	8	2 7/8	11	240236	186.15	1.0661 - 1.1280	234.30	210.00	202.05	198.15	194.15	190.85
1 3/16	1.1875	3	8	2 7/8	11	240238	197.15	1.1281 - 1.1905	245.40	221.10	213.15	209.15	205.05	201.85
1 1/4	1.2500	4	8	3	11 1/2	240240	219.05	1.1906 - 1.2530	267.25	243.10	235.05	231.10	227.05	223.75
1 3/16	1.3125	4	8	3	11 1/2	240242	236.25	1.2531 - 1.3155	284.30	260.25	252.10	248.30	244.15	240.90
1 3/8	1.3750	4	8	3 1/4	12	240244	245.70	1.3156 - 1.3780	293.90	269.75	261.70	257.85	253.65	250.60
1 7/16	1.4375	4	8	3 1/4	12	240246	250.80	1.3781 - 1.4405	299.05	274.95	266.75	263.00	258.75	255.55
1 1/2	1.5000	4	8	3 1/2	12 1/2	240248	263.30	1.4406 - 1.5030	311.45	287.50	279.35	275.50	271.30	268.05
1 9/16	1.5625	4	8	3 1/2	12 1/2	240250	284.25	1.5031 - 1.5660	332.40	308.30	300.15	296.35	292.20	288.95
1 5/8	1.6250	4	8	3 3/4	13	240252	294.00	1.5661 - 1.6280	342.25	318.15	310.00	306.15	302.10	298.75
1 11/16	1.6875	4	8	3 3/4	13	240254	330.65	1.6281 - 1.6910	378.85	354.65	346.75	342.75	338.75	335.50
1 3/4	1.7500	4	10	4	13 1/2	240256	330.65	1.6911 - 1.7530	378.85	354.65	346.75	342.75	338.75	335.50
1 13/16	1.8125	4	10	4	13 1/2	240258	330.65	1.7531 - 1.8160	378.85	354.65	346.75	342.75	338.75	335.50
1 7/8	1.8750	4	10	4 1/4	14	240260	346.50	1.8161 - 1.8780	394.60	370.50	362.40	358.50	354.50	351.15
1 15/16	1.9375	4	10	4 1/4	14	240262	346.50	1.8781 - 1.9410	394.60	370.50	362.40	358.50	354.50	351.15
2	2.0000	4	12	4 1/4	14	240264	346.50	1.9411 - 2.0030	394.60	370.50	362.40	358.50	354.50	351.15

*Quantities of 15 or more: price of fractional size in same size range.



CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT FLUTES & TAPER SHANK

TYPE 2402 - METRIC



NOTE: Tool diameter in millimeters (mm); all other dimensions in inches.

TOOL DIAMETER		TYPE 2402 METRIC EDP NO.	METRIC PRICE	DIMENSIONS					SPECIAL METRIC SIZE RANGE	PRICE EACH - FINISHED TO METRIC SIZE						
mm	INCH			MORSE TAPER	NO. OF FLUTES	LENGTH				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14	OVER 14
						FLT	CAR-BIDE	OVER-ALL								
6.0	.2362	2402060	\$68.90	1	4	1 1/2	1/2	6	6.000 - 6.426	\$102.05	\$80.00	\$72.70	\$69.00	\$65.35	\$62.20	\$58.00
6.5	.2559	2402065	69.95	1	4	1 1/2	1/2	6	6.427 - 7.214	102.95	81.10	73.70	70.10	66.35	63.30	59.15
7.0	.2756	2402070	69.95	1	4	1 1/2	1/2	6	-	-	-	-	-	-	-	-
7.5	.2953	2402075	69.95	1	4	1 1/2	1/2	6	7.215 - 8.001	102.95	81.10	73.70	70.10	66.35	63.30	59.15
8.0	.3150	2402080	69.95	1	4	1 1/2	1/2	6	-	-	-	-	-	-	-	-
8.5	.3346	2402085	71.85	1	4	1 1/2	5/8	6	8.002 - 8.814	104.95	83.00	75.70	72.00	68.35	65.35	61.10
9.0	.3543	2402090	65.90	1	4	1 3/4	5/8	7	8.815 - 9.601	96.30	76.20	69.55	66.20	62.80	60.05	56.05
9.5	.3740	2402095	65.90	1	4	1 3/4	5/8	7	-	-	-	-	-	-	-	-
10.0	.3937	2402100	74.70	1	4	1 3/4	5/8	7	9.602 - 10.389	107.75	85.80	78.50	74.90	71.30	68.15	64.00
10.5	.4134	2402105	78.55	1	4	1 3/4	5/8	7	10.390 - 11.201	111.70	89.85	82.35	78.85	75.10	71.95	67.90
11.0	.4331	2402110	78.55	1	4	1 3/4	5/8	7	-	-	-	-	-	-	-	-
11.5	.4528	2402115	80.30	1	4	1 3/4	5/8	7	11.202 - 11.989	113.35	91.55	84.05	80.55	76.80	73.75	69.60
12.0	.4724	2402120	93.45	1	6	2	5/8	8	11.990 - 12.776	129.75	105.80	97.60	93.60	89.70	86.30	81.50
12.5	.4921	2402125	93.45	1	6	2	5/8	8	-	-	-	-	-	-	-	-
13.0	.5118	2402130	99.60	1	6	2	5/8	8	12.777 - 13.564	136.05	111.85	103.75	99.80	95.85	92.40	87.70
13.5	.5315	2402135	99.60	1	6	2	5/8	8	-	-	-	-	-	-	-	-
14.0	.5512	2402140	99.60	1	6	2	5/8	8	13.565 - 14.376	136.05	111.85	103.75	99.80	95.85	92.40	87.70
14.5	.5709	2402145	103.65	1	6	2	5/8	8	14.377 - 15.164	140.00	115.90	107.75	103.90	99.80	96.35	91.75
15.0	.5906	2402150	103.65	1	6	2	5/8	8	-	-	-	-	-	-	-	-
15.5	.6102	2402155	103.65	2	6	2 1/4	5/8	9	15.165 - 15.951	140.00	115.90	107.75	103.90	99.80	96.35	91.75
16.0	.6299	2402160	105.25	2	6	2 1/4	5/8	9	15.952 - 16.739	141.70	117.40	109.45	105.50	101.40	98.00	93.40
16.5	.6496	2402165	105.25	2	6	2 1/4	5/8	9	-	-	-	-	-	-	-	-
17.0	.6693	2402170	105.25	2	6	2 1/4	5/8	9	16.740 - 17.551	141.70	117.40	109.45	105.50	101.40	98.00	93.40
17.5	.6890	2402175	105.25	2	6	2 1/4	5/8	9	-	-	-	-	-	-	-	-
18.0	.7087	2402180	109.25	2	6	2 1/4	5/8	9	17.552 - 18.339	145.75	121.50	113.55	109.50	105.50	102.10	97.50
18.5	.7283	2402185	109.25	2	6	2 1/2	3/4	9 1/2	18.340 - 19.126	145.75	121.50	113.55	109.50	105.50	102.10	97.50
19.0	.7480	2402190	109.25	2	6	2 1/2	3/4	9 1/2	-	-	-	-	-	-	-	-
19.5	.7677	2402195	112.25	2	6	2 1/2	3/4	9 1/2	19.127 - 19.914	148.55	124.35	116.35	112.40	108.40	104.90	100.30
20.0	.7874	2402200	112.25	2	6	2 1/2	3/4	9 1/2	19.915 - 20.726	148.55	124.35	116.35	112.40	108.40	104.90	100.30
20.5	.8071	2402205	112.25	2	6	2 1/2	3/4	9 1/2	-	-	-	-	-	-	-	-
21.0	.8268	2402210	116.35	2	6	2 1/2	3/4	9 1/2	20.727 - 21.514	152.80	128.65	120.45	116.50	112.45	109.05	104.45
21.5	.8465	2402215	116.35	2	6	2 1/2	3/4	9 1/2	-	-	-	-	-	-	-	-
22.0	.8661	2402220	116.35	2	6	2 5/8	3/4	10	21.515 - 22.301	152.80	128.65	120.45	116.50	112.45	109.05	104.45
22.5	.8858	2402225	138.70	2	6	2 5/8	3/4	10	22.302 - 23.089	176.50	151.45	143.05	138.85	134.65	131.05	126.35
23.0	.9055	2402230	138.70	2	6	2 5/8	3/4	10	-	-	-	-	-	-	-	-
23.5	.9252	2402235	138.70	3	8	2 5/8	3/4	10	23.090 - 23.901	176.50	151.45	143.05	138.85	134.65	131.05	126.35
24.0	.9449	2402240	143.70	3	8	2 5/8	3/4	10	23.902 - 24.689	181.70	156.65	148.05	144.00	139.80	136.25	131.45
24.5	.9646	2402245	143.70	3	8	2 5/8	3/4	10	-	-	-	-	-	-	-	-
25.0	.9843	2402250	143.70	3	8	2 3/4	3/4	10 1/2	24.690 - 25.476	181.70	156.65	148.05	144.00	139.80	136.25	131.45
25.5	1.0039	2402255	190.75	3	8	2 3/4	3/4	10 1/2	25.477 - 27.076	227.00	202.85	194.90	190.90	186.85	183.50	179.00
26.0	1.0236	2402260	190.75	3	8	2 3/4	3/4	10 1/2	-	-	-	-	-	-	-	-
27.0	1.0630	2402270	190.75	3	8	2 3/4	3/4	10 1/2	-	-	-	-	-	-	-	-
28.0	1.1024	2402280	202.05	3	8	2 7/8	7/8	11	27.077 - 28.651	238.25	214.20	206.15	202.25	198.15	194.90	190.20
29.0	1.1417	2402290	213.15	3	8	2 7/8	7/8	11	28.652 - 30.239	249.30	225.30	217.30	213.30	209.15	205.95	201.20
30.0	1.1811	2402300	213.15	3	8	2 7/8	7/8	11	-	-	-	-	-	-	-	-
31.0	1.2205	2402310	235.05	4	8	3	7/8	11 1/2	30.240 - 31.826	271.25	247.30	239.20	235.15	231.10	227.75	223.15
32.0	1.2598	2402320	252.10	4	8	3	7/8	11 1/2	31.827 - 33.414	288.30	264.40	256.25	252.30	248.30	244.85	240.35
33.0	1.2992	2402330	252.10	4	8	3	7/8	11 1/2	-	-	-	-	-	-	-	-
34.0	1.3386	2402340	261.70	4	8	3 1/4	7/8	12	33.415 - 35.001	297.90	273.90	265.85	261.85	257.85	254.50	249.95
35.0	1.3780	2402350	261.70	4	8	3 1/4	7/8	12	-	-	-	-	-	-	-	-
36.0	1.4173	2402360	266.75	4	8	3 1/4	7/8	12	35.002 - 36.589	303.10	278.95	271.00	267.05	263.00	259.60	254.95
37.0	1.4567	2402370	279.35	4	8	3 1/2	7/8	12 1/2	36.590 - 38.176	315.60	291.55	283.40	279.55	275.50	272.10	267.60
38.0	1.4961	2402380	279.35	4	8	3 1/2	7/8	12 1/2	-	-	-	-	-	-	-	-
39.0	1.5354	2402390	300.15	4	8	3 1/2	7/8	12 1/2	38.177 - 39.776	336.45	312.40	304.30	300.40	296.35	292.90	288.30
40.0	1.5748	2402400	310.00	4	8	3 3/4	7/8	13	39.777 - 41.351	346.25	322.25	314.15	310.20	306.15	302.80	298.10
41.0	1.6142	2402410	310.00	4	8	3 3/4	7/8	13	-	-	-	-	-	-	-	-

Modified tool diameters are available up to 50mm - contact us for price.



CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT FLUTE LONG CARBIDE - STRAIGHT SHANK



TYPE 2450 - FINISHED FRACTIONAL SIZES

Straight shank and straight polished flutes.
Flute long carbide brazed to one piece hardened alloy steel bodies.
Cutting diameter tolerance plus .0003" minus .0000".

USE:

For all general reaming - especially designed with flute long carbide for deep hole reaming to precision tolerances and for long production runs.

OPTIONS:

Intermediate decimal sizes (priced as indicated in extended table below).

Cutting diameter reduced for small steps or pilot.

Radius end or end chamfer other than 45°.

End cutting.

Rose grind (twice normal back taper).

Short shank or undersized shank diameter.

Flat on shank or tapered shank.

Semi-finished type reamers in stock (see page 47).

Closer tolerance.

For +.0002" add \$1.00 per tool.

For +.0001" add \$3.00 per tool.

TOOL DIAMETER		SHANK DIAM.	NO. OF FLUTES	LENGTH		TYPE 2450 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL			FLUTE	OVERALL				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
3/16	.1875	1/64	4	1 1/2	6	245006	\$56.35	0.1770 - 0.2040	\$101.50	\$78.90	\$71.50	\$67.80	\$63.85	\$60.75
7/32	.2188	1/64	4	1 1/2	6	245007	56.35	0.2041 - 0.2210	101.50	78.90	71.50	67.80	63.85	60.75
1/8	.2344	7/32	4	1 1/2	6	24502344	56.35	0.2211 - 0.2380	101.50	78.90	71.50	67.80	63.85	60.75
1/4	.2500	1/64	4	1 1/2	6	245008	56.35	0.2381 - 0.2530	101.50	78.90	71.50	67.80	63.85	60.75
9/32	.2812	1/64	4	1 1/2	6	245009	57.65	0.2531 - 0.2840	102.75	80.10	72.55	68.95	65.00	62.05
5/16	.3125	9/32	4	1 1/2	6	245010	57.65	0.2841 - 0.3150	102.75	80.10	72.55	68.95	65.00	62.05
11/32	.3438	9/32	4	1 1/2	6	245011	59.60	0.3151 - 0.3470	104.85	82.30	74.55	71.05	67.20	64.10
3/8	.3750	5/16	4	1 3/4	7	245012	59.60	0.3471 - 0.3780	104.85	82.30	74.55	71.05	67.20	64.10
13/32	.4062	5/16	4	1 3/4	7	245013	62.70	0.3781 - 0.4090	107.75	85.25	77.65	74.10	70.15	67.05
7/16	.4375	3/8	4	1 3/4	7	245014	67.80	0.4091 - 0.4410	112.95	90.25	82.65	79.15	75.25	72.20
15/32	.4688	3/8	4	1 3/4	7	245015	73.15	0.4411 - 0.4720	118.35	95.85	88.10	84.50	80.65	77.65
1/2	.5000	7/16	6	2	8	245016	78.35	0.4721 - 0.5030	126.80	102.55	94.55	90.60	86.50	83.05
17/32	.5312	7/16	6	2	8	245017	80.60	0.5031 - 0.5340	129.05	104.80	96.70	92.70	88.60	85.30
9/16	.5625	7/16	6	2	8	245018	80.60	0.5341 - 0.5660	129.05	104.80	96.70	92.70	88.60	85.30
19/32	.5938	7/16	6	2	8	245019	83.75	0.5661 - 0.5970	132.15	107.80	99.80	96.05	91.75	88.55
5/8	.6250	9/16	6	2	9	245020	83.75	0.5971 - 0.6280	132.15	107.80	99.80	96.05	91.75	88.55
21/32	.6562	9/16	6	2	9	245021	85.25	0.6281 - 0.6590	133.65	109.45	101.35	97.50	93.25	90.00
11/16	.6875	9/16	6	2	9	245022	85.25	0.6591 - 0.6910	133.65	109.45	101.35	97.50	93.25	90.00
23/32	.7188	9/16	6	2	9	245023	89.20	0.6911 - 0.7220	137.55	113.35	105.25	101.40	97.25	93.90
3/4	.7500	5/8	6	2	9 1/2	245024	89.20	0.7221 - 0.7530	137.55	113.35	105.25	101.40	97.25	93.90
25/32	.7812	5/8	6	2	9 1/2	245025	92.25	0.7531 - 0.7840	140.60	116.45	108.40	104.45	100.30	97.00
13/16	.8125	5/8	6	2	9 1/2	245026	92.25	0.7841 - 0.8160	140.60	116.45	108.40	104.45	100.30	97.00
27/32	.8438	5/8	6	2	9 1/2	245027	96.05	0.8161 - 0.8470	144.40	120.00	111.90	108.10	104.00	100.65
7/8	.8750	3/4	6	2 1/4	10	245028	99.60	0.8471 - 0.8780	149.80	124.70	116.25	112.20	107.80	104.45
29/32	.9062	3/4	6	2 1/4	10	245029	115.90	0.8781 - 0.9090	166.10	141.00	132.50	128.55	124.25	120.80
15/16	.9375	3/4	8	2 1/4	10	245030	115.90	0.9091 - 0.9410	166.10	141.00	132.50	128.55	124.25	120.80
31/32	.9688	3/4	8	2 1/4	10	245031	121.40	0.9411 - 0.9720	171.65	146.50	138.15	134.10	129.75	126.35
1	1.0000	7/8	8	2 1/4	10 1/2	245032	121.40	0.9721 - 1.0030	171.65	146.50	138.15	134.10	129.75	126.35
1 1/16	1.0625	7/8	8	2 1/4	10 1/2	245034	125.65	1.0031 - 1.0660	173.85	149.65	141.65	137.70	133.65	130.35
1 1/8	1.1250	7/8	8	2 1/4	11	245036	136.00	1.0661 - 1.1280	184.05	160.10	151.95	148.05	143.90	140.60
1 3/16	1.1875	1	8	2 1/4	11	245038	142.25	1.1281 - 1.1905	190.35	166.30	158.25	154.35	150.20	147.00
1 1/4	1.2500	1	8	2 1/2	11 1/2	245040	166.10	1.1906 - 1.2530	214.20	190.15	182.00	178.15	174.00	170.75
1 3/8	1.3125	1	8	2 1/2	11 1/2	245042	166.10	1.2531 - 1.3155	214.20	190.15	182.00	178.15	174.00	170.75
1 3/8	1.3750	1	8	2 1/2	12	245044	168.50	1.3156 - 1.3780	216.65	192.60	184.45	180.60	176.50	173.15
1 7/16	1.4375	1 1/4	8	2 1/2	12	245046	186.20	1.3781 - 1.4405	234.40	210.10	202.20	198.30	194.20	190.90
1 1/2	1.5000	1 1/4	8	2 1/2	12 1/2	245048	223.50	1.4406 - 1.5030	271.65	247.45	239.50	235.65	231.50	228.30
1 9/16	1.5625	1 1/4	8	2 1/2	12 1/2	245050	295.05	1.5031 - 1.5660	343.15	319.05	311.00	307.15	303.05	299.80
1 3/8	1.6250	1 1/4	8	2 3/4	13	245052	305.10	1.5661 - 1.6280	353.25	329.00	321.00	317.30	313.05	309.85
1 11/16	1.6875	1 1/4	8	2 3/4	13	245054	334.90	1.6281 - 1.6910	383.15	359.10	351.05	347.10	343.00	339.85
1 3/4	1.7500	1 1/4	10	3	13 1/2	245056	334.90	1.6911 - 1.7530	383.15	359.10	351.05	347.10	343.00	339.85
1 13/16	1.8125	1 1/2	10	3	13 1/2	245058	342.75	1.7531 - 1.8160	391.00	366.90	358.65	354.95	350.80	347.55
1 7/8	1.8750	1 1/2	10	3 1/4	14	245060	359.45	1.8161 - 1.8780	407.55	383.45	375.50	371.60	367.35	364.20
1 15/16	1.9375	1 1/2	10	3 1/4	14	245062	381.15	1.8781 - 1.9410	429.25	405.05	397.05	393.20	389.10	385.80
2	2.0000	1 1/2	12	3 1/4	14	245064	381.15	1.9411 - 2.0030	429.25	405.05	397.05	393.20	389.10	385.80

*Quantities of 15 or more: price of fractional size in same size range.



CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT FLUTE LONG CARBIDE & STRAIGHT SHANK



TYPE 2450 - METRIC

NOTE: Tool diameter in millimeters (mm); all other dimensions in inches.

TOOL DIAMETER		TYPE 2450 METRIC EDP NO.	METRIC PRICE	DIMENSIONS				SPECIAL METRIC SIZE RANGE	PRICE EACH - FINISHED TO METRIC SIZE						
mm	INCH			SHANK DIAM.	NO. OF FLUTES	LENGTH			1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14	OVER 14
		FLUTE & CARBIDE	OVER-ALL												
4.5	.1772	2450045	\$71.50	1/64	4	1 1/2	6	4.494-5.182	\$105.45	\$82.85	75.25	\$71.55	\$67.80	\$64.60	\$60.30
5.0	.1969	2450050	71.50	1/64	4	1 1/2	6	-	-	-	-	-	-	-	-
5.5	.2165	2450055	71.50	1/64	4	1 1/2	6	5.183-5.613	105.45	82.85	75.25	71.55	67.80	64.60	60.30
6.0	.2362	2450060	71.50	7/32	4	1 1/2	6	5.614-6.045	105.45	82.85	75.25	71.55	67.80	64.60	60.30
6.3	.2480	2450063	71.50	1/64	4	1 1/2	6	6.046-6.426	105.45	82.85	75.25	71.55	67.80	64.60	60.30
6.5	.2559	2450065	72.55	1/64	4	1 1/2	6	6.427-7.214	106.45	84.00	76.40	72.70	68.95	65.70	61.50
7.0	.2756	2450070	72.55	1/64	4	1 1/2	6	-	-	-	-	-	-	-	-
7.5	.2953	2450075	72.55	9/32	4	1 1/2	6	7.215-8.001	106.45	84.00	76.40	72.70	68.95	65.70	61.50
8.0	.3150	2450080	72.55	5/32	4	1 1/2	6	-	-	-	-	-	-	-	-
8.5	.3346	2450085	74.55	9/32	4	1 1/2	6	8.002-8.814	108.60	86.20	78.50	74.85	71.05	67.95	63.55
9.0	.3543	2450090	74.55	5/16	4	1 3/4	7	8.815-9.601	108.60	86.20	78.50	74.85	71.05	67.95	63.55
9.5	.3740	2450095	74.55	5/16	4	1 3/4	7	-	-	-	-	-	-	-	-
10.0	.3937	2450100	77.65	5/16	4	1 3/4	7	9.602-10.389	111.65	89.15	81.45	77.80	74.10	70.90	66.50
10.5	.4134	2450105	82.65	3/8	4	1 3/4	7	10.390-11.201	116.80	94.05	86.55	82.90	79.15	75.95	71.60
11.0	.4331	2450110	82.65	3/8	4	1 3/4	7	-	-	-	-	-	-	-	-
11.5	.4528	2450115	88.10	3/8	4	1 3/4	7	11.202-11.989	122.15	99.60	92.10	88.40	84.50	81.35	77.05
12.0	.4724	2450120	94.55	7/16	6	2	8	11.990-12.776	130.85	106.75	98.60	94.65	90.60	87.20	82.55
12.5	.4921	2450125	94.55	7/16	6	2	8	-	-	-	-	-	-	-	-
13.0	.5118	2450130	96.70	7/16	6	2	8	12.777-13.564	133.10	108.90	100.80	96.80	92.70	89.35	84.75
13.5	.5315	2450135	96.70	7/16	6	2	8	-	-	-	-	-	-	-	-
14.0	.5512	2450140	96.70	7/16	6	2	8	13.565-14.376	133.10	108.90	100.80	96.80	92.70	89.35	84.75
14.5	.5709	2450145	99.80	7/16	6	2	8	14.377-15.164	136.20	112.00	104.00	99.95	96.05	92.55	87.95
15.0	.5906	2450150	99.80	7/16	6	2	8	-	-	-	-	-	-	-	-
15.5	.6102	2450155	99.80	9/16	6	2	9	15.165-15.951	136.20	112.00	104.00	99.95	96.05	92.55	87.95
16.0	.6299	2450160	101.35	9/16	6	2	9	15.952-16.739	137.60	113.60	105.50	101.45	97.50	94.00	89.35
16.5	.6496	2450165	101.35	9/16	6	2	9	-	-	-	-	-	-	-	-
17.0	.6693	2450170	101.35	9/16	6	2	9	16.740-17.551	137.60	113.60	105.50	101.45	97.50	94.00	89.35
17.5	.6890	2450175	101.35	9/16	6	2	9	-	-	-	-	-	-	-	-
18.0	.7087	2450180	105.25	9/16	6	2	9	17.552-18.339	141.70	117.40	109.45	105.50	101.40	98.00	93.40
18.5	.7283	2450185	105.25	5/8	6	2	9 1/2	18.340-19.126	141.70	117.40	109.45	105.50	101.40	98.00	93.40
19.0	.7480	2450190	105.25	5/8	6	2	9 1/2	-	-	-	-	-	-	-	-
19.5	.7677	2450195	108.40	5/8	6	2	9 1/2	19.127-19.914	144.70	120.65	112.45	108.50	104.45	101.05	96.35
20.0	.7874	2450200	108.40	5/8	6	2	9 1/2	19.915-20.726	144.70	120.65	112.45	108.50	104.45	101.05	96.35
20.5	.8071	2450205	108.40	5/8	6	2	9 1/2	-	-	-	-	-	-	-	-
21.0	.8268	2450210	111.90	5/8	6	2	9 1/2	20.727-21.514	148.45	124.25	116.10	112.25	108.10	104.80	100.05
21.5	.8465	2450215	111.90	5/8	6	2	9 1/2	-	-	-	-	-	-	-	-
22.0	.8661	2450220	111.90	3/4	6	2 1/4	10	21.515-22.301	148.45	124.25	116.10	112.25	108.10	104.80	100.05
22.5	.8858	2450225	132.50	3/4	6	2 1/4	10	22.302-23.089	170.35	145.30	136.90	132.70	128.55	124.95	120.05
23.0	.9055	2450230	132.50	3/4	6	2 1/4	10	-	-	-	-	-	-	-	-
23.5	.9252	2450235	132.50	3/4	8	2 1/4	10	23.090-23.901	170.35	145.30	136.90	132.70	128.55	124.95	120.05
24.0	.9449	2450240	138.15	3/4	8	2 1/4	10	23.902-24.689	175.80	150.85	142.35	138.25	134.10	130.65	125.80
24.5	.9646	2450245	138.15	3/4	8	2 1/4	10	-	-	-	-	-	-	-	-
25.0	.9843	2450250	138.15	7/8	8	2 1/4	10 1/2	24.690-25.476	175.80	150.85	142.35	138.25	134.10	130.65	125.80
25.5	1.0039	2450255	141.65	7/8	8	2 1/4	10 1/2	25.477-27.076	177.85	153.85	145.75	141.80	137.70	134.40	129.75
26.0	1.0236	2450260	141.65	7/8	8	2 1/4	10 1/2	-	-	-	-	-	-	-	-
27.0	1.0630	2450270	141.65	7/8	8	2 1/4	10 1/2	-	-	-	-	-	-	-	-
28.0	1.1024	2450280	151.95	7/8	8	2 1/4	11	27.077-28.651	188.20	164.15	156.00	152.15	148.05	144.70	140.00
29.0	1.1417	2450290	158.25	1	8	2 1/4	11	28.652-30.239	194.35	170.50	162.35	158.35	154.35	151.00	146.45
30.0	1.1811	2450300	158.25	1	8	2 1/4	11	-	-	-	-	-	-	-	-
31.0	1.2205	2450310	182.00	1	8	2 1/2	11 1/2	30.240-31.826	218.30	194.25	186.20	182.35	178.15	174.70	170.20
32.0	1.2598	2450320	182.00	1	8	2 1/2	11 1/2	31.827-33.414	218.30	194.25	186.20	182.35	178.15	174.70	170.20
33.0	1.2992	2450330	182.00	1	8	2 1/2	11 1/2	-	-	-	-	-	-	-	-
34.0	1.3386	2450340	184.45	1	8	2 1/2	12	33.415-35.001	220.80	196.70	188.60	184.75	180.60	177.35	172.75
35.0	1.3780	2450350	184.45	1	8	2 1/2	12	-	-	-	-	-	-	-	-
36.0	1.4173	2450360	202.20	1 1/4	8	2 1/2	12	35.002-36.589	238.35	214.40	206.25	202.30	198.30	194.95	190.25
37.0	1.4567	2450370	239.50	1 1/4	8	2 1/2	12 1/2	36.590-38.176	275.60	251.65	243.60	239.65	235.65	232.25	227.60
38.0	1.4961	2450380	239.50	1 1/4	8	2 1/2	12 1/2	-	-	-	-	-	-	-	-

Modified tool diameters are available up to 50mm - contact us for price.



CHUCKING REAMERS

CARBIDE TIPPED - STOCKED - FLUTE LENGTH CARBIDE - TYPE 2450

NOTE: Dimension details and modifications listed on page 28.

TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE
.1770	24501770	\$71.50	.2070	24502070	\$71.50	.2370	24502370	\$71.50	.2670	24502670	\$72.55	.2970	24502970	\$72.55
.1775	24501775	71.50	.2075	24502075	71.50	.2375	24502375	71.50	.2675	24502675	72.55	.2975	24502975	72.55
.1780	24501780	71.50	.2080	24502080	71.50	.2380	24502380	71.50	.2680	24502680	72.55	.2980	24502980	72.55
.1785	24501785	71.50	.2085	24502085	71.50	.2385	24502385	71.50	.2685	24502685	72.55	.2985	24502985	72.55
.1790	24501790	71.50	.2090	24502090	71.50	.2390	24502390	71.50	.2690	24502690	72.55	.2990	24502990	72.55
.1795	24501795	71.50	.2095	24502095	71.50	.2395	24502395	71.50	.2695	24502695	72.55	.2995	24502995	72.55
.1800	24501800	71.50	.2100	24502100	71.50	.2400	24502400	71.50	.2700	24502700	72.55	.3000	24503000	72.55
.1805	24501805	71.50	.2105	24502105	71.50	.2405	24502405	71.50	.2705	24502705	72.55	.3005	24503005	72.55
.1810	24501810	71.50	.2110	24502110	71.50	.2410	24502410	71.50	.2710	24502710	72.55	.3010	24503010	72.55
.1815	24501815	71.50	.2115	24502115	71.50	.2415	24502415	71.50	.2715	24502715	72.55	.3015	24503015	72.55
.1820	24501820	71.50	.2120	24502120	71.50	.2420	24502420	71.50	.2720	24502720	72.55	.3020	24503020	72.55
.1825	24501825	71.50	.2125	24502125	71.50	.2425	24502425	71.50	.2725	24502725	72.55	.3025	24503025	72.55
.1830	24501830	71.50	.2130	24502130	71.50	.2430	24502430	71.50	.2730	24502730	72.55	.3030	24503030	72.55
.1835	24501835	71.50	.2135	24502135	71.50	.2435	24502435	71.50	.2735	24502735	72.55	.3035	24503035	72.55
.1840	24501840	71.50	.2140	24502140	71.50	.2440	24502440	71.50	.2740	24502740	72.55	.3040	24503040	72.55
.1845	24501845	71.50	.2145	24502145	71.50	.2445	24502445	71.50	.2745	24502745	72.55	.3045	24503045	72.55
.1850	2450047	71.50	.2150	24502150	71.50	.2450	24502450	71.50	.2750	24502750	72.55	.3050	24503050	72.55
.1855	24501855	71.50	.2155	24502155	71.50	.2455	24502455	71.50	.2755	24502755	72.55	.3055	24503055	72.55
.1860	24501860	71.50	.2160	24502160	71.50	.2460	24502460	71.50	.2760	24502760	72.55	.3060	24503060	72.55
.1865	24501865	71.50	.2165	2450055	71.50	.2465	24502465	71.50	.2765	24502765	72.55	.3065	24503065	72.55
.1870	24501870	71.50	.2170	24502170	71.50	.2470	24502470	71.50	.2770	24502770	72.55	.3070	24503070	72.55
.1875	245006	56.35	.2175	24502175	71.50	.2475	24502475	71.50	.2775	24502775	72.55	.3075	24503075	72.55
.1880	24501880	71.50	.2180	24502180	71.50	.2480	2450063	71.50	.2780	24502780	72.55	.3080	24503080	72.55
.1885	24501885	71.50	.2185	24502185	71.50	.2485	24502485	71.50	.2785	24502785	72.55	.3085	24503085	72.55
.1890	2450048	71.50	.2190	24502190	71.50	.2490	24502490	71.50	.2790	24502790	72.55	.3090	24503090	72.55
.1895	24501895	71.50	.2195	24502195	71.50	.2495	24502495	71.50	.2795	2450071	72.55	.3095	24503095	72.55
.1900	24501900	71.50	.2200	24502200	71.50	.2500	245008	56.35	.2800	24502800	72.55	.3100	24503100	72.55
.1905	24501905	71.50	.2205	2450056	71.50	.2505	24502505	71.50	.2805	24502805	72.55	.3105	24503105	72.55
.1910	24501910	71.50	.2210	24502210	71.50	.2510	24502510	71.50	.2810	24502810	72.55	.3110	2450079	72.55
.1915	24501915	71.50	.2215	24502215	71.50	.2515	24502515	71.50	.2815	24502815	72.55	.3115	24503115	72.55
.1920	24501920	71.50	.2220	24502220	71.50	.2520	2450064	71.50	.2820	24502820	72.55	.3120	24503120	72.55
.1925	24501925	71.50	.2225	24502225	71.50	.2525	24502525	71.50	.2825	24502825	72.55	.3125	245010	57.65
.1930	24501930	71.50	.2230	24502230	71.50	.2530	24502530	71.50	.2830	24502830	72.55	.3130	24503130	72.55
.1935	24501935	71.50	.2235	24502235	71.50	.2535	24502535	72.55	.2835	2450072	72.55	.3135	24503135	72.55
.1940	24501940	71.50	.2240	24502240	71.50	.2540	24502540	72.55	.2840	24502840	72.55	.3140	24503140	72.55
.1945	24501945	71.50	.2245	24502245	71.50	.2545	24502545	72.55	.2845	24502845	72.55	.3145	24503145	72.55
.1950	24501950	71.50	.2250	24502250	71.50	.2550	24502550	72.55	.2850	24502850	72.55	.3150	2450080	72.55
.1955	24501955	71.50	.2255	24502255	71.50	.2555	24502555	72.55	.2855	24502855	72.55	.3155	24503155	74.55
.1960	24501960	71.50	.2260	24502260	71.50	.2560	24502560	72.55	.2860	24502860	72.55	.3160	24503160	74.55
.1965	24501965	71.50	.2265	24502265	71.50	.2565	24502565	72.55	.2865	24502865	72.55	.3165	24503165	74.55
.1970	24501970	71.50	.2270	24502270	71.50	.2570	24502570	72.55	.2870	24502870	72.55	.3170	24503170	74.55
.1975	24501975	71.50	.2275	24502275	71.50	.2575	24502575	72.55	.2875	24502875	72.55	.3175	24503175	74.55
.1980	24501980	71.50	.2280	24502280	71.50	.2580	24502580	72.55	.2880	24502880	72.55	.3180	24503180	74.55
.1985	24501985	71.50	.2285	24502285	71.50	.2585	24502585	72.55	.2885	24502885	72.55	.3185	24503185	74.55
.1990	24501990	71.50	.2290	24502290	71.50	.2590	24502590	72.55	.2890	24502890	72.55	.3190	24503190	74.55
.1995	24501995	71.50	.2295	24502295	71.50	.2595	24502595	72.55	.2895	24502895	72.55	.3195	24503195	74.55
.2000	24502000	71.50	.2300	24502300	71.50	.2600	24502600	72.55	.2900	24502900	72.55	.3200	24503200	74.55
.2005	24502005	71.50	.2305	24502305	71.50	.2605	24502605	72.55	.2905	24502905	72.55	.3205	24503205	74.55
.2010	24502010	71.50	.2310	24502310	71.50	.2610	24502610	72.55	.2910	24502910	72.55	.3210	24503210	74.55
.2015	24502015	71.50	.2315	24502315	71.50	.2615	24502615	72.55	.2915	24502915	72.55	.3215	24503215	74.55
.2020	24502020	71.50	.2320	24502320	71.50	.2620	24502620	72.55	.2920	24502920	72.55	.3220	24503220	74.55
.2025	24502025	71.50	.2325	24502325	71.50	.2625	24502625	72.55	.2925	24502925	72.55	.3225	24503225	74.55
.2030	24502030	71.50	.2330	24502330	71.50	.2630	24502630	72.55	.2930	24502930	72.55	.3230	24503230	74.55
.2035	24502035	71.50	.2335	24502335	71.50	.2635	24502635	72.55	.2935	24502935	72.55	.3235	24503235	74.55
.2040	24502040	71.50	.2340	24502340	71.50	.2640	24502640	72.55	.2940	24502940	72.55	.3240	24503240	74.55
.2045	24502045	71.50	.2345	24502345	71.50	.2645	24502645	72.55	.2945	24502945	72.55	.3245	24503245	74.55
.2050	24502050	71.50	.2350	24502350	71.50	.2650	24502650	72.55	.2950	24502950	72.55	.3250	24503250	74.55
.2055	24502055	71.50	.2355	24502355	71.50	.2655	24502655	72.55	.2955	24502955	72.55	.3255	24503255	74.55
.2060	24502060	71.50	.2360	24502360	71.50	.2660	24502660	72.55	.2960	24502960	72.55	.3260	24503260	74.55
.2065	24502065	71.50	.2365	24502365	71.50	.2665	24502665	72.55	.2965	24502965	72.55	.3265	24503265	74.55



CHUCKING REAMERS

CARBIDE TIPPED - STOCKED - FLUTE LENGTH CARBIDE - TYPE 2450

NOTE: Dimension details and modifications listed on page 28.

TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE
.3270	24503270	\$74.55	.3570	24503570	\$74.55	.3870	24503870	\$77.65	.4170	24504170	\$82.65	.4470	24504470	\$88.20
.3275	24503275	74.55	.3575	24503575	74.55	.3875	24503875	77.65	.4175	24504175	82.65	.4475	24504475	88.20
.3280	24503280	74.55	.3580	24503580	74.55	.3880	24503880	77.65	.4180	24504180	82.65	.4480	24504480	88.20
.3285	24503285	74.55	.3585	24503585	74.55	.3885	24503885	77.65	.4185	24504185	82.65	.4485	24504485	88.20
.3290	24503290	74.55	.3590	24503590	74.55	.3890	24503890	77.65	.4190	24504190	82.65	.4490	24504490	88.20
.3295	24503295	74.55	.3595	24503595	74.55	.3895	24503895	77.65	.4195	24504195	82.65	.4495	24504495	88.20
.3300	24503300	74.55	.3600	24503600	74.55	.3900	24503900	77.65	.4200	24504200	82.65	.4500	24504500	88.20
.3305	24503305	74.55	.3605	24503605	74.55	.3905	24503905	77.65	.4205	24504205	82.65	.4505	24504505	88.20
.3310	24503310	74.55	.3610	24503610	74.55	.3910	24503910	77.65	.4210	24504210	82.65	.4510	24504510	88.20
.3315	24503315	74.55	.3615	24503615	74.55	.3915	24503915	77.65	.4215	24504215	82.65	.4515	24504515	88.20
.3320	24503320	74.55	.3620	24503620	74.55	.3920	24503920	77.65	.4220	24504220	82.65	.4520	24504520	88.20
.3325	24503325	74.55	.3625	24503625	74.55	.3925	24503925	77.65	.4225	24504225	82.65	.4525	24504525	88.20
.3330	24503330	74.55	.3630	24503630	74.55	.3930	24503930	77.65	.4230	24504230	82.65	.4530	24504530	88.20
.3335	24503335	74.55	.3635	24503635	74.55	.3935	24503935	77.65	.4235	24504235	82.65	.4535	24504535	88.20
.3340	24503340	74.55	.3640	24503640	74.55	.3940	24503940	77.65	.4240	24504240	82.65	.4540	24504540	88.20
.3345	24503345	74.55	.3645	24503645	74.55	.3945	24503945	77.65	.4245	24504245	82.65	.4545	24504545	88.20
.3350	24503350	74.55	.3650	24503650	74.55	.3950	24503950	77.65	.4250	24504250	82.65	.4550	24504550	88.20
.3355	24503355	74.55	.3655	24503655	74.55	.3955	24503955	77.65	.4255	24504255	82.65	.4555	24504555	88.20
.3360	24503360	74.55	.3660	24503660	74.55	.3960	24503960	77.65	.4260	24504260	82.65	.4560	24504560	88.20
.3365	24503365	74.55	.3665	24503665	74.55	.3965	24503965	77.65	.4265	24504265	82.65	.4565	24504565	88.20
.3370	24503370	74.55	.3670	24503670	74.55	.3970	24503970	77.65	.4270	24504270	82.65	.4570	24504570	88.20
.3375	24503375	74.55	.3675	24503675	74.55	.3975	24503975	77.65	.4275	24504275	82.65	.4575	24504575	88.20
.3380	24503380	74.55	.3680	24503680	74.55	.3980	24503980	77.65	.4280	24504280	82.65	.4580	24504580	88.20
.3385	24503385	74.55	.3685	24503685	74.55	.3985	24503985	77.65	.4285	24504285	82.65	.4585	24504585	88.20
.3390	24503390	74.55	.3690	24503690	74.55	.3990	24503990	77.65	.4290	24504290	82.65	.4590	24504590	88.20
.3395	24503395	74.55	.3695	24503695	74.55	.3995	24503995	77.65	.4295	24504295	82.65	.4595	24504595	88.20
.3400	24503400	74.55	.3700	24503700	74.55	.4000	24504000	77.65	.4300	24504300	82.65	.4600	24504600	88.20
.3405	24503405	74.55	.3705	24503705	74.55	.4005	24504005	77.65	.4305	24504305	82.65	.4605	24504605	88.20
.3410	24503410	74.55	.3710	24503710	74.55	.4010	24504010	77.65	.4310	24504310	82.65	.4610	24504610	88.20
.3415	24503415	74.55	.3715	24503715	74.55	.4015	24504015	77.65	.4315	24504315	82.65	.4615	24504615	88.20
.3420	24503420	74.55	.3720	24503720	74.55	.4020	24504020	77.65	.4320	24504320	82.65	.4620	24504620	88.20
.3425	2450087	74.55	.3725	24503725	74.55	.4025	24504025	77.65	.4325	24504325	82.65	.4625	24504625	88.20
.3430	24503430	74.55	.3730	24503730	74.55	.4030	24504030	77.65	.4330	24504330	82.65	.4630	24504630	88.20
.3435	24503435	74.55	.3735	24503735	74.55	.4035	24504035	77.65	.4335	24504335	82.65	.4635	24504635	88.20
.3440	24503440	74.55	.3740	2450095	74.55	.4040	24504040	77.65	.4340	24504340	82.65	.4640	24504640	88.20
.3445	24503445	74.55	.3745	24503745	74.55	.4045	24504045	77.65	.4345	24504345	82.65	.4645	24504645	88.20
.3450	24503450	74.55	.3750	245012	59.60	.4050	24504050	77.65	.4350	24504350	82.65	.4650	24504650	88.20
.3455	24503455	74.55	.3755	24503755	74.55	.4055	2450103	77.65	.4355	24504355	82.65	.4655	24504655	88.20
.3460	24503460	74.55	.3760	24503760	74.55	.4060	24504060	77.65	.4360	24504360	82.65	.4660	24504660	88.20
.3465	2450088	74.55	.3765	24503765	74.55	.4065	24504065	77.65	.4365	24504365	82.65	.4665	24504665	88.20
.3470	24503470	74.55	.3770	24503770	74.55	.4070	24504070	77.65	.4370	2450111	82.65	.4670	24504670	88.20
.3475	24503475	74.55	.3775	24503775	74.55	.4075	24504075	77.65	.4375	245014	67.80	.4675	24504675	88.20
.3480	24503480	74.55	.3780	2450096	74.55	.4080	24504080	77.65	.4380	24504380	82.65	.4680	24504680	88.20
.3485	24503485	74.55	.3785	24503785	77.65	.4085	24504085	77.65	.4385	24504385	82.65	.4685	2450119	88.20
.3490	24503490	74.55	.3790	24503790	77.65	.4090	24504090	77.65	.4390	24504390	82.65	.4690	24504690	88.20
.3495	24503495	74.55	.3795	24503795	77.65	.4095	24504095	82.65	.4395	24504395	82.65	.4695	24504695	88.20
.3500	24503500	74.55	.3800	24503800	77.65	.4100	24504100	82.65	.4400	24504400	82.65	.4700	24504700	88.20
.3505	24503505	74.55	.3805	24503805	77.65	.4105	24504105	82.65	.4405	24504405	82.65	.4705	24504705	88.20
.3510	24503510	74.55	.3810	24503810	77.65	.4110	24504110	82.65	.4410	24504410	82.65	.4710	24504710	88.20
.3515	24503515	74.55	.3815	24503815	77.65	.4115	24504115	82.65	.4415	24504415	88.20	.4715	24504715	88.20
.3520	24503520	74.55	.3820	24503820	77.65	.4120	24504120	82.65	.4420	24504420	88.20	.4720	24504720	88.20
.3525	24503525	74.55	.3825	24503825	77.65	.4125	24504125	82.65	.4425	24504425	88.20	.4725	24504725	94.60
.3530	24503530	74.55	.3830	24503830	77.65	.4130	24504130	82.65	.4430	24504430	88.20	.4730	24504730	94.60
.3535	24503535	74.55	.3835	24503835	77.65	.4135	24504135	82.65	.4435	24504435	88.20	.4735	24504735	94.60
.3540	24503540	74.55	.3840	24503840	77.65	.4140	24504140	82.65	.4440	24504440	88.20	.4740	24504740	94.60
.3545	24503545	74.55	.3845	24503845	77.65	.4145	24504145	82.65	.4445	24504445	88.20	.4745	24504745	94.60
.3550	24503550	74.55	.3850	24503850	77.65	.4150	24504150	82.65	.4450	24504450	88.20	.4750	24504750	94.60
.3555	24503555	74.55	.3855	24503855	77.65	.4155	24504155	82.65	.4455	24504455	88.20	.4755	24504755	94.60
.3560	24503560	74.55	.3860	24503860	77.65	.4160	24504160	82.65	.4460	24504460	88.20	.4760	24504760	94.60
.3565	24503565	74.55	.3865	24503865	77.65	.4165	24504165	82.65	.4465	24504465	88.20	.4765	24504765	94.60



CHUCKING REAMERS

CARBIDE TIPPED - STOCKED - FLUTE LENGTH CARBIDE - TYPE 2450

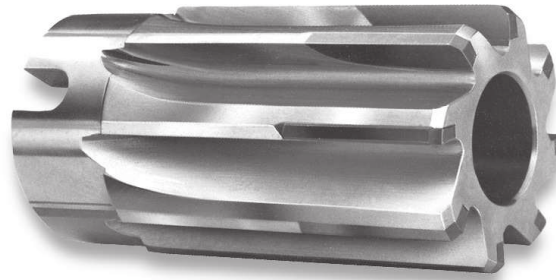
NOTE: Dimension details and modifications listed on page 28.

TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE
.4770	24504770	\$94.60	.5070	24505070	\$96.70	.5370	24505370	\$96.70	.5670	24505670	\$99.80	.5970	24505970	\$99.80
.4775	24504775	94.60	.5075	24505075	96.70	.5375	24505375	96.70	.5675	24505675	99.80	.5975	24505975	99.80
.4780	24504780	94.60	.5080	24505080	96.70	.5380	24505380	96.70	.5680	24505680	99.80	.5980	24505980	99.80
.4785	24504785	94.60	.5085	24505085	96.70	.5385	24505385	96.70	.5685	24505685	99.80	.5985	24505985	99.80
.4790	24504790	94.60	.5090	24505090	96.70	.5390	24505390	96.70	.5690	24505690	99.80	.5990	24505990	99.80
.4795	24504795	94.60	.5095	24505095	96.70	.5395	24505395	96.70	.5695	24505695	99.80	.5995	24505995	99.80
.4800	24504800	94.60	.5100	24505100	96.70	.5400	24505400	96.70	.5700	24505700	99.80	.6000	24506000	99.80
.4805	24504805	94.60	.5105	24505105	96.70	.5405	24505405	96.70	.5705	24505705	99.80	.6005	24506005	99.80
.4810	24504810	94.60	.5110	24505110	96.70	.5410	24505410	96.70	.5710	24505710	99.80	.6010	24506010	99.80
.4815	24504815	94.60	.5115	24505115	96.70	.5415	24505415	96.70	.5715	24505715	99.80	.6015	24506015	99.80
.4820	24504820	94.60	.5120	24505120	96.70	.5420	24505420	96.70	.5720	24505720	99.80	.6020	24506020	99.80
.4825	24504825	94.60	.5125	24505125	96.70	.5425	24505425	96.70	.5725	24505725	99.80	.6025	24506025	99.80
.4830	24504830	94.60	.5130	24505130	96.70	.5430	24505430	96.70	.5730	24505730	99.80	.6030	24506030	99.80
.4835	24504835	94.60	.5135	24505135	96.70	.5435	24505435	96.70	.5735	24505735	99.80	.6035	24506035	99.80
.4840	24504840	94.60	.5140	24505140	96.70	.5440	24505440	96.70	.5740	24505740	99.80	.6040	24506040	99.80
.4845	24504845	94.60	.5145	24505145	96.70	.5445	24505445	96.70	.5745	24505745	99.80	.6045	24506045	99.80
.4850	24504850	94.60	.5150	24505150	96.70	.5450	24505450	96.70	.5750	24505750	99.80	.6050	24506050	99.80
.4855	24504855	94.60	.5155	24505155	96.70	.5455	24505455	96.70	.5755	24505755	99.80	.6055	24506055	99.80
.4860	24504860	94.60	.5160	24505160	96.70	.5460	24505460	96.70	.5760	24505760	99.80	.6060	24506060	99.80
.4865	24504865	94.60	.5165	24505165	96.70	.5465	24505465	96.70	.5765	24505765	99.80	.6065	24506065	99.80
.4870	24504870	94.60	.5170	24505170	96.70	.5470	24505470	96.70	.5770	24505770	99.80	.6070	24506070	99.80
.4875	24504875	94.60	.5175	24505175	96.70	.5475	24505475	96.70	.5775	24505775	99.80	.6075	24506075	99.80
.4880	24504880	94.60	.5180	24505180	96.70	.5480	24505480	96.70	.5780	24505780	99.80	.6080	24506080	99.80
.4885	24504885	94.60	.5185	24505185	96.70	.5485	24505485	96.70	.5785	24505785	99.80	.6085	24506085	99.80
.4890	24504890	94.60	.5190	24505190	96.70	.5490	24505490	96.70	.5790	24505790	99.80	.6090	24506090	99.80
.4895	24504895	94.60	.5195	24505195	96.70	.5495	24505495	96.70	.5795	24505795	99.80	.6095	24506095	99.80
.4900	24504900	94.60	.5200	24505200	96.70	.5500	24505500	96.70	.5800	24505800	99.80	.6100	24506100	99.80
.4905	24504905	94.60	.5205	24505205	96.70	.5505	24505505	96.70	.5805	24505805	99.80	.6105	24506105	99.80
.4910	24504910	94.60	.5210	24505210	96.70	.5510	24505510	96.70	.5810	24505810	99.80	.6110	24506110	99.80
.4915	24504915	94.60	.5215	24505215	96.70	.5515	24505515	96.70	.5815	24505815	99.80	.6115	24506115	99.80
.4920	24504920	94.60	.5220	24505220	96.70	.5520	24505520	96.70	.5820	24505820	99.80	.6120	24506120	99.80
.4925	24504925	94.60	.5225	24505225	96.70	.5525	24505525	96.70	.5825	24505825	99.80	.6125	24506125	99.80
.4930	24504930	94.60	.5230	24505230	96.70	.5530	24505530	96.70	.5830	24505830	99.80	.6130	24506130	99.80
.4935	24504935	94.60	.5235	24505235	96.70	.5535	24505535	96.70	.5835	24505835	99.80	.6135	24506135	99.80
.4940	24504940	94.60	.5240	24505240	96.70	.5540	24505540	96.70	.5840	24505840	99.80	.6140	24506140	99.80
.4945	24504945	94.60	.5245	24505245	96.70	.5545	24505545	96.70	.5845	24505845	99.80	.6145	24506145	99.80
.4950	24504950	94.60	.5250	24505250	96.70	.5550	24505550	96.70	.5850	24505850	99.80	.6150	24506150	99.80
.4955	24504955	94.60	.5255	24505255	96.70	.5555	24505555	96.70	.5855	24505855	99.80	.6155	24506155	99.80
.4960	24504960	94.60	.5260	24505260	96.70	.5560	24505560	96.70	.5860	24505860	99.80	.6160	24506160	99.80
.4965	24504965	94.60	.5265	24505265	96.70	.5565	24505565	96.70	.5865	24505865	99.80	.6165	24506165	99.80
.4970	24504970	94.60	.5270	24505270	96.70	.5570	24505570	96.70	.5870	24505870	99.80	.6170	24506170	99.80
.4975	24504975	94.60	.5275	24505275	96.70	.5575	24505575	96.70	.5875	24505875	99.80	.6175	24506175	99.80
.4980	24504980	94.60	.5280	24505280	96.70	.5580	24505580	96.70	.5880	24505880	99.80	.6180	24506180	99.80
.4985	24504985	94.60	.5285	24505285	96.70	.5585	24505585	96.70	.5885	24505885	99.80	.6185	24506185	99.80
.4990	24504990	94.60	.5290	24505290	96.70	.5590	24505590	96.70	.5890	24505890	99.80	.6190	24506190	99.80
.4995	24504995	94.60	.5295	24505295	96.70	.5595	24505595	96.70	.5895	24505895	99.80	.6195	24506195	99.80
.5000	245016	78.35	.5300	24505300	96.70	.5600	24505600	96.70	.5900	24505900	99.80	.6200	24506200	99.80
.5005	24505005	94.60	.5305	24505305	96.70	.5605	24505605	96.70	.5905	24505905	99.80	.6205	24506205	99.80
.5010	24505010	94.60	.5310	24505310	96.70	.5610	24505610	96.70	.5910	24505910	99.80	.6210	24506210	99.80
.5015	24505015	94.60	.5315	2450135	96.70	.5615	24505615	96.70	.5915	24505915	99.80	.6215	24506215	99.80
.5020	24505020	94.60	.5320	24505320	96.70	.5620	24505620	96.70	.5920	24505920	99.80	.6220	2450158	99.80
.5025	24505025	94.60	.5325	24505325	96.70	.5625	245018	80.60	.5925	24505925	99.80	.6225	24506225	99.80
.5030	24505030	94.60	.5330	24505330	96.70	.5630	2450143	96.70	.5930	24505930	99.80	.6230	24506230	99.80
.5035	24505035	96.70	.5335	24505335	96.70	.5635	24505635	96.70	.5935	24505935	99.80	.6235	24506235	99.80
.5040	24505040	96.70	.5340	24505340	96.70	.5640	24505640	96.70	.5940	24505940	99.80	.6240	24506240	99.80
.5045	24505045	96.70	.5345	24505345	96.70	.5645	24505645	96.70	.5945	2450151	99.80	.6245	24506245	99.80
.5050	24505050	96.70	.5350	24505350	96.70	.5650	24505650	96.70	.5950	24505950	99.80	.6250	245020	83.75
.5055	24505055	96.70	.5355	24505355	96.70	.5655	24505655	96.70	.5955	24505955	99.80	.6255	24506255	99.80
.5060	24505060	96.70	.5360	24505360	96.70	.5660	24505660	96.70	.5960	24505960	99.80	.6260	2450159	99.80
.5065	24505065	96.70	.5365	24505365	96.70	.5665	24505665	99.80	.5965	24505965	99.80	.6265	24506265	99.80



SHELL REAMERS

CARBIDE TIPPED - STRAIGHT FLUTES



TYPE 2431 - FINISHED FRACTIONAL SIZES

Straight polished flutes.
 Carbide tips brazed to hardened alloy steel bodies.
 Arbor hole tapered 1/8" per foot: Drive slots.
 Cutting diameter tolerance: thru 1" diameter: +.0001", +.0005".
 over 1" diameter: +.0002", +.0006".

Shell reamers are used with an arbor which is tapered to fit the hole in the reamer. Drive slots in the reamer engage lugs on the arbor to supplement the rotational drive from the tapered arbor. The space between the reamer's drive end and the arbor collar permits easy removal of the shell reamer by prying.

OPTIONS:

Decimal sizes priced below.
 Cut diam. reduced for step or pilot.
 End chamfer other than 45°.
 End cutting or corner radius.
 Increased or decreased back taper.

TOOL DIAMETER		HOLE DIAM. LARGE END	FITS ARBOR NO.	LENGTH		NO. OF FLUTES	TYPE 2431 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL			FLUTE	OVERALL					1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
3/4	.7500	3/8	4	1 3/4	2 1/4	6	243124	\$224.05	0.7221 - 0.7530	\$316.95	\$270.45	\$254.85	\$247.40	\$239.50	\$233.30
25/32	.7812	3/8	4	1 3/4	2 1/4	6	243125	228.40	0.7531 - 0.7840	321.25	274.70	259.30	251.80	243.85	237.65
13/16	.8125	1/2	5	1 15/16	2 1/2	6	243126	228.40	0.7841 - 0.8160	321.25	274.70	259.30	251.80	243.85	237.65
7/8	.8750	1/2	5	1 15/16	2 1/2	6	243128	255.30	0.8161 - 0.8780	351.65	303.30	287.05	279.55	271.25	264.65
15/16	.9375	1/2	5	1 15/16	2 1/2	8	243130	255.30	0.8781 - 0.9410	351.65	303.30	287.05	279.55	271.25	264.65
1	1.0000	1/2	5	1 15/16	2 1/2	8	243132	259.90	0.9411 - 1.0030	356.25	307.95	291.85	284.15	275.85	269.30
1 1/16	1.0625	5/8	6	2 1/8	2 3/4	8	243134	269.05	1.0031 - 1.0660	365.30	317.05	300.75	293.20	284.95	278.35
1 1/8	1.1250	5/8	6	2 1/8	2 3/4	8	243136	273.50	1.0661 - 1.1280	369.80	321.60	305.35	297.80	289.45	283.00
1 3/16	1.1875	5/8	6	2 1/8	2 3/4	8	243138	278.15	1.1281 - 1.1905	374.25	326.20	310.00	302.40	294.00	287.60
1 1/4	1.2500	5/8	6	2 1/8	2 3/4	8	243140	296.35	1.1906 - 1.2530	392.60	344.40	328.30	320.50	312.35	305.80
1 5/16	1.3125	3/4	7	2 1/4	3	8	243142	300.75	1.2531 - 1.3155	397.10	348.90	332.75	325.10	316.95	310.30
1 3/8	1.3750	3/4	7	2 1/4	3	8	243144	309.95	1.3156 - 1.3780	406.30	357.95	341.90	334.10	325.85	319.40
1 7/16	1.4375	3/4	7	2 1/4	3	8	243146	319.10	1.3781 - 1.4405	415.35	367.15	351.05	343.40	334.90	328.60
1 1/2	1.5000	3/4	7	2 1/4	3	8	243148	332.75	1.4406 - 1.5030	429.15	380.85	364.65	356.95	348.70	342.25
1 9/16	1.5625	3/4	7	2 1/4	3	10	243150	385.30	1.5031 - 1.5660	485.75	435.50	418.55	410.45	401.85	395.15
1 5/8	1.6250	3/4	7	2 1/4	3	10	243152	404.20	1.5661 - 1.6280	504.85	454.50	437.55	429.50	420.95	414.15
1 11/16	1.6875	1	8	2 3/4	3 1/2	10	243154	437.60	1.6281 - 1.6910	538.25	487.80	470.95	462.90	454.35	447.60
1 3/4	1.7500	1	8	2 3/4	3 1/2	10	243156	437.60	1.6911 - 1.7530	538.25	487.80	470.95	462.90	454.35	447.60
1 13/16	1.8125	1	8	2 3/4	3 1/2	10	243158	470.85	1.7531 - 1.8160	571.25	521.00	504.15	496.15	487.50	480.65
1 7/8	1.8750	1	8	2 3/4	3 1/2	10	243160	470.85	1.8161 - 1.8780	571.25	521.00	504.15	496.15	487.50	480.65
1 15/16	1.9375	1	8	2 3/4	3 1/2	10	243162	504.25	1.8781 - 1.9410	604.60	554.30	537.50	529.55	520.90	514.10
2	2.0000	1	8	2 3/4	3 1/2	10	243164	504.25	1.9411 - 2.0030	604.60	554.30	537.50	529.55	520.90	514.10
2 1/16	2.0625	1 1/4	9	2 7/8	3 3/4	12	243166	542.25	2.0031 - 2.0660	642.70	592.45	575.50	567.55	558.85	552.15
2 1/8	2.1250	1 1/4	9	2 7/8	3 3/4	12	243168	542.25	2.0661 - 2.1280	642.70	592.45	575.50	567.55	558.85	552.15
2 3/16	2.1875	1 1/4	9	2 7/8	3 3/4	12	243170	589.75	2.1281 - 2.1905	690.30	639.90	623.05	615.00	606.50	599.55
2 1/4	2.2500	1 1/4	9	2 7/8	3 3/4	12	243172	589.75	2.1906 - 2.2530	690.30	639.90	623.05	615.00	606.50	599.55
2 5/16	2.3125	1 1/4	9	2 7/8	3 3/4	12	243174	623.05	2.2531 - 2.3155	723.65	673.20	656.40	648.30	639.75	632.90
2 3/8	2.3750	1 1/4	9	2 7/8	3 3/4	12	243176	623.05	2.3156 - 2.3780	723.65	673.20	656.40	648.30	639.75	632.90
2 7/16	2.4375	1 1/4	9	2 7/8	3 3/4	12	243178	656.45	2.3781 - 2.4405	756.95	706.60	689.75	681.70	673.10	666.25
2 1/2	2.5000	1 1/4	9	2 7/8	3 3/4	12	243180	656.45	2.4406 - 2.5030	756.95	706.60	689.75	681.70	673.10	666.25
2 9/16	2.5625	1 1/2	10	3 1/8	4	14	243182	720.55	2.5031 - 2.5660	821.05	770.70	753.85	745.80	737.20	730.40
2 5/8	2.6250	1 1/2	10	3 1/8	4	14	243184	747.30	2.5661 - 2.6280	847.75	797.30	780.65	772.45	763.95	757.10
2 11/16	2.6875	1 1/2	10	3 1/8	4	14	243186	776.30	2.6281 - 2.6910	876.75	826.50	809.60	801.65	792.95	786.15
2 3/4	2.7500	1 1/2	10	3 1/8	4	14	243188	803.30	2.6911 - 2.7530	903.80	853.40	836.55	828.60	819.95	813.10
2 13/16	2.8125	1 1/2	10	3 1/8	4	14	243190	831.50	2.7531 - 2.8160	931.95	881.70	864.85	856.80	848.20	841.45
2 7/8	2.8750	1 1/2	10	3 1/8	4	14	243192	864.85	2.8161 - 2.8780	965.20	915.05	898.05	890.15	881.50	874.70
2 15/16	2.9375	1 1/2	10	3 1/8	4	14	243194	898.25	2.8781 - 2.9410	998.70	948.30	931.45	923.60	914.95	908.10
3	3.0000	1 1/2	10	3 1/8	4	14	243196	931.55	2.9411 - 3.0030	1032.00	981.70	964.85	957.00	948.25	941.50

*Quantities of 15 or more: price of fractional size in same size range.



CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT FLUTE LONG CARBIDE - TAPER SHANK



TYPE 2452 - FINISHED FRACTIONAL SIZES

Taper shank and straight polished flutes.
Flute long carbide brazed to one piece hardened alloy steel bodies.
Cutting diameter tolerance plus .0003" minus .0000".

USE:

For all general reaming.
Especially designed with flute long carbide for deep hole reaming to precision tolerances and for long production runs.

OPTIONS:

Intermediate decimal sizes (priced as indicated in extended table below).
Cutting diameter reduced for small steps or pilot.
Radius end or end chamfer other than 45°.
End cutting.
Rose grind (twice normal back taper).
Closer tolerance.
For +.0002" add \$1.00 per tool.
For +.0001" add \$3.00 per tool.

TOOL DIAMETER		MORSE TAPER	NO. OF FLUTES	LENGTH		TYPE 2452 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL			FLUTE	OVERALL				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
1/4	.2500	1	4	1 1/2	6	245208	\$64.90	0.2381 - 0.2530	\$110.10	\$87.45	\$79.85	\$76.20	\$72.40	\$69.25
9/32	.2812	1	4	1 1/2	6	245209	65.70	0.2531 - 0.2840	111.00	88.40	80.70	77.10	73.20	70.20
5/16	.3125	1	4	1 1/2	6	245210	65.70	0.2841 - 0.3150	111.00	88.40	80.70	77.10	73.20	70.20
11/32	.3438	1	4	1 1/2	6	245211	67.25	0.3151 - 0.3470	112.45	89.90	82.30	78.55	74.70	71.65
3/8	.3750	1	4	1 3/4	7	245212	68.00	0.3471 - 0.3780	113.20	90.60	82.95	79.35	75.45	72.50
13/32	.4062	1	4	1 3/4	7	245213	71.60	0.3781 - 0.4090	116.85	94.05	86.55	82.95	79.15	76.10
7/16	.4375	1	4	1 3/4	7	245214	76.25	0.4091 - 0.4410	121.45	98.90	91.30	87.70	83.80	80.70
15/32	.4688	1	4	1 3/4	7	245215	77.85	0.4411 - 0.4720	123.20	100.35	92.90	89.25	85.40	82.35
1/2	.5000	1	6	2	8	245216	84.00	0.4721 - 0.5030	132.30	108.10	99.95	96.15	91.95	88.75
17/32	.5312	1	6	2	8	245217	91.95	0.5031 - 0.5340	140.45	116.10	107.95	104.15	99.95	96.70
9/16	.5625	1	6	2	8	245218	91.95	0.5341 - 0.5660	140.45	116.10	107.95	104.15	99.95	96.70
19/32	.5938	1	6	2	8	245219	96.20	0.5661 - 0.5970	144.60	120.40	112.30	108.45	104.25	101.00
5/8	.6250	2	6	2	9	245220	96.20	0.5971 - 0.6280	144.60	120.40	112.30	108.45	104.25	101.00
21/32	.6562	2	6	2	9	245221	98.00	0.6281 - 0.6590	146.50	122.15	113.95	110.20	106.00	102.80
11/16	.6875	2	6	2	9	245222	98.00	0.6591 - 0.6910	146.50	122.15	113.95	110.20	106.00	102.80
23/32	.7188	2	6	2	9	245223	99.35	0.6911 - 0.7220	147.90	123.50	115.35	111.60	107.40	104.15
3/4	.7500	2	6	2	9 1/2	245224	102.55	0.7221 - 0.7530	151.00	126.70	118.60	114.70	110.45	107.35
25/32	.7812	2	6	2	9 1/2	245225	103.35	0.7531 - 0.7840	151.80	127.55	119.45	115.40	111.35	108.10
13/16	.8125	2	6	2	9 1/2	245226	105.80	0.7841 - 0.8160	154.05	129.75	121.80	117.95	113.75	110.40
27/32	.8438	2	6	2	9 1/2	245227	110.30	0.8161 - 0.8470	158.85	134.50	126.35	122.60	118.35	115.20
7/8	.8750	2	6	2 1/4	10	245228	114.60	0.8471 - 0.8780	164.85	139.65	131.05	127.30	122.75	119.55
29/32	.9062	2	6	2 1/4	10	245229	129.05	0.8781 - 0.9090	179.20	154.05	145.75	141.70	137.25	133.95
15/16	.9375	3	8	2 1/4	10	245230	134.25	0.9091 - 0.9410	184.30	159.20	150.85	146.80	142.45	139.10
31/32	.9688	3	8	2 1/4	10	245231	139.70	0.9411 - 0.9720	190.00	164.85	156.35	152.35	148.00	144.70
1	1.0000	3	8	2 1/4	10 1/2	245232	139.70	0.9721 - 1.0030	190.00	164.85	156.35	152.35	148.00	144.70
1 1/16	1.0625	3	8	2 1/4	10 1/2	245234	191.50	1.0031 - 1.0660	239.65	215.40	207.40	203.65	199.45	196.15
1 1/8	1.1250	3	8	2 1/4	11	245236	206.25	1.0661 - 1.1280	254.35	230.30	222.30	218.35	214.20	210.95
1 3/16	1.1875	3	8	2 1/4	11	245238	221.65	1.1281 - 1.1905	269.75	245.60	237.55	233.65	229.70	226.30
1 1/4	1.2500	4	8	2 1/2	11 1/2	245240	235.55	1.1906 - 1.2530	283.60	259.50	251.50	247.50	243.35	240.20
1 5/16	1.3125	4	8	2 1/2	11 1/2	245242	265.90	1.2531 - 1.3155	314.05	290.00	281.75	278.10	273.90	270.65
1 3/8	1.3750	4	8	2 1/2	12	245244	303.85	1.3156 - 1.3780	351.95	327.90	319.75	315.90	311.75	308.50
1 7/16	1.4375	4	8	2 1/2	12	245246	317.10	1.3781 - 1.4405	365.30	341.20	333.10	329.40	325.10	321.80
1 1/2	1.5000	4	8	2 1/2	12 1/2	245248	330.35	1.4406 - 1.5030	378.50	354.50	346.40	342.50	338.35	335.05

*Quantities of 15 or more: price of fractional size in same size range.



CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT FLUTE LONG CARBIDE & TAPER SHANK

TYPE 2452 - METRIC



NOTE: Tool diameter in millimeters (mm); all other dimensions in inches.

TOOL DIAMETER		TYPE 2452 METRIC EDP NO.	METRIC PRICE	DIMENSIONS				SPECIAL METRIC SIZE RANGE	PRICE EACH - FINISHED TO METRIC SIZE						
mm	INCH			MORSE TAPER	NO. OF FLUTES	LENGTH			1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14	OVER 14
						FLUTE & CARBIDE	OVER-ALL								
6.0	.2362	2452060	\$79.85	1	4	1 1/2	6	6.000-6.426	\$113.85	\$91.30	\$83.75	\$80.00	\$76.20	\$73.10	\$68.75
6.5	.2559	2452065	80.70	1	4	1 1/2	6	6.427-7.214	114.70	92.25	84.70	81.05	77.10	74.10	69.65
7.0	.2756	2452070	80.70	1	4	1 1/2	6	-	-	-	-	-	-	-	-
7.5	.2953	2452075	80.70	1	4	1 1/2	6	7.215-8.001	114.70	92.25	84.70	81.05	77.10	74.10	69.65
8.0	.3150	2452080	80.70	1	4	1 1/2	6	-	-	-	-	-	-	-	-
8.5	.3346	2452085	82.30	1	4	1 1/2	6	8.002-8.814	116.30	93.70	86.20	82.45	78.55	75.45	71.10
9.0	.3543	2452090	82.95	1	4	1 3/4	7	8.815-9.601	117.00	94.55	86.80	83.05	79.35	76.20	71.80
9.5	.3740	2452095	82.95	1	4	1 3/4	7	-	-	-	-	-	-	-	-
10.0	.3937	2452100	86.55	1	4	1 3/4	7	9.602-10.389	120.65	98.00	90.40	86.70	82.95	79.85	75.45
10.5	.4134	2452105	91.30	1	4	1 3/4	7	10.390-11.201	125.20	102.75	95.20	91.55	87.70	84.50	80.25
11.0	.4331	2452110	91.30	1	4	1 3/4	7	-	-	-	-	-	-	-	-
11.5	.4528	2452115	92.90	1	4	1 3/4	7	11.202-11.989	126.90	104.25	96.75	93.10	89.25	86.20	81.65
12.0	.4724	2452120	99.95	1	6	2	8	11.990-12.776	136.45	112.30	104.15	100.20	96.15	92.70	88.10
12.5	.4921	2452125	99.95	1	6	2	8	-	-	-	-	-	-	-	-
13.0	.5118	2452130	107.95	1	6	2	8	12.777-13.564	144.45	120.25	112.25	108.35	104.15	100.80	96.15
13.5	.5315	2452135	107.95	1	6	2	8	-	-	-	-	-	-	-	-
14.0	.5512	2452140	107.95	1	6	2	8	13.565-14.376	144.45	120.25	112.25	108.35	104.15	100.80	96.15
14.5	.5709	2452145	112.30	1	6	2	8	14.377-15.164	148.65	124.65	116.45	112.45	108.45	104.95	100.35
15.0	.5906	2452150	112.30	1	6	2	8	-	-	-	-	-	-	-	-
15.5	.6102	2452155	112.30	2	6	2	9	15.165-15.951	148.65	124.65	116.45	112.45	108.45	104.95	100.35
16.0	.6299	2452160	113.95	2	6	2	9	15.952-16.739	150.50	126.25	118.20	114.25	110.20	106.95	102.15
16.5	.6496	2452165	113.95	2	6	2	9	-	-	-	-	-	-	-	-
17.0	.6693	2452170	113.95	2	6	2	9	16.740-17.551	150.50	126.25	118.20	114.25	110.20	106.95	102.15
17.5	.6890	2452175	113.95	2	6	2	9	-	-	-	-	-	-	-	-
18.0	.7087	2452180	115.35	2	6	2	9	17.552-18.339	151.95	127.70	119.70	115.65	111.60	108.35	103.50
18.5	.7283	2452185	118.60	2	6	2	9 1/2	18.340-19.126	155.10	130.85	122.70	118.75	114.70	111.35	106.75
19.0	.7480	2452190	118.60	2	6	2	9 1/2	-	-	-	-	-	-	-	-
19.5	.7677	2452195	119.45	2	6	2	9 1/2	19.127-19.914	155.80	131.75	123.50	119.70	115.40	112.25	107.45
20.0	.7874	2452200	121.80	2	6	2	9 1/2	19.915-20.726	158.25	133.95	125.90	122.00	117.95	114.55	109.95
20.5	.8071	2452205	121.80	2	6	2	9 1/2	-	-	-	-	-	-	-	-
21.0	.8268	2452210	126.35	2	6	2	9 1/2	20.727-21.514	162.85	138.70	130.65	126.60	122.60	119.25	114.55
21.5	.8465	2452215	126.35	2	6	2	9 1/2	-	-	-	-	-	-	-	-
22.0	.8661	2452220	126.35	2	6	2 1/4	10	21.515-22.301	162.85	138.70	130.65	126.60	122.60	119.25	114.55
22.5	.8858	2452225	145.75	2	6	2 1/4	10	22.302-23.089	183.45	158.35	149.95	145.85	141.70	138.20	133.50
23.0	.9055	2452230	145.75	2	6	2 1/4	10	-	-	-	-	-	-	-	-
23.5	.9252	2452235	150.85	3	8	2 1/4	10	23.090-23.901	188.60	163.50	155.20	151.00	146.80	143.30	138.45
24.0	.9449	2452240	156.35	3	8	2 1/4	10	23.902-24.689	194.20	169.05	160.70	156.65	152.35	148.85	144.00
24.5	.9646	2452245	156.35	3	8	2 1/4	10	-	-	-	-	-	-	-	-
25.0	.9843	2452250	156.35	3	8	2 1/4	10 1/2	24.690-25.476	194.20	169.05	160.70	156.65	152.35	148.85	144.00
25.5	1.0039	2452255	207.40	3	8	2 1/4	10 1/2	25.477-27.076	243.75	219.65	211.50	207.65	203.65	200.30	195.70
26.0	1.0236	2452260	207.40	3	8	2 1/4	10 1/2	-	-	-	-	-	-	-	-
27.0	1.0630	2452270	207.40	3	8	2 1/4	10 1/2	-	-	-	-	-	-	-	-
28.0	1.1024	2452280	222.30	3	8	2 1/4	11	27.077-28.651	258.45	234.45	226.30	222.40	218.35	215.00	210.45
29.0	1.1417	2452290	237.55	3	8	2 1/4	11	28.652-30.239	273.80	249.80	241.65	237.80	233.65	230.40	225.75
30.0	1.1811	2452300	237.55	3	8	2 1/4	11	-	-	-	-	-	-	-	-
31.0	1.2205	2452310	251.50	4	8	2 1/2	11 1/2	30.240-31.826	287.65	263.70	255.55	251.65	247.50	244.20	239.65
32.0	1.2598	2452320	281.75	4	8	2 1/2	11 1/2	31.827-33.414	318.15	294.00	286.05	282.05	278.10	274.65	269.95
33.0	1.2992	2452330	281.75	4	8	2 1/2	11 1/2	-	-	-	-	-	-	-	-
34.0	1.3386	2452340	319.75	4	8	2 1/2	12	33.415-35.001	356.00	332.00	323.90	320.05	315.90	312.60	307.95
35.0	1.3780	2452350	319.75	4	8	2 1/2	12	-	-	-	-	-	-	-	-
36.0	1.4173	2452360	333.10	4	8	2 1/2	12	35.002-36.589	369.30	345.25	337.25	333.25	329.40	325.85	321.10
37.0	1.4567	2452370	346.40	4	8	2 1/2	12 1/2	36.590-38.176	382.65	358.50	350.45	346.70	342.50	339.25	334.65
38.0	1.4961	2452380	346.40	4	8	2 1/2	12 1/2	-	-	-	-	-	-	-	-



CHUCKING REAMERS

CARBIDE TIPPED - FOR REAMING STEEL, TOUGH STEEL ALLOYS & CAST IRON



TYPE 2480 - FINISHED FRACTIONAL SIZES

Steel cutting grade flute long carbide brazed to hardened alloy steel bodies.

Special steel cutting tool geometry:

Positive radial rake (behind center).

Narrow circular lands.

Minimum back taper.

Longer flutes for straighter holes.

Straight shanks to ANSI specifications.

OPTIONS:

Decimal sizes priced below.

Cut diam. reduced for step or pilot.

End chamfer other than 45°.

End cutting or corner radius.

Short shank or undersize shank diam.

Flat on shank or tanged shank.

Closer tolerance.

For +.0002" add \$1.00 per tool.

For +.0001" add \$3.00 per tool.

USE:

This carbide tipped reamer's design is based on our extensive development and design experience in manufacturing special reamers for reaming steel in the automotive industry. This design is proven in an industry where performance is carefully evaluated.

Traditional steel reaming problems have been reduced by the following:

1. Holds size longer because steel cutting grade carbide is utilized — but not just any steel cutting grade carbide as we discovered only a few domestic manufacturers' carbide have the field proven wear characteristics necessary when reaming tough abrasive materials.
2. Contrary to the machinery data handbook our design utilizes a smaller positive radial rake — for better performance when reaming steel.
3. Improved hole surface finish as this reamer's reduced circular land minimizes possible material buildup that will reduce surface quality.
4. Straighter holes because of longer full flute length carbide and reduced back taper. Many more regrinds before reinserting.
5. Controlled deep (-300°F) cryogenic treatment after the carbide is brazed on the tool - also several other subtle features that only our tools have.

TOOL DIAMETER		MAX. SHANK DIAMETER	NO. OF FLUTES	LENGTH		TYPE 2480 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL			FLUTE & CARBIDE	OVERALL				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
3/16	.1875	.1805	4	1 1/8	4 1/2	248006	\$67.55	0.1770 - 0.2040	\$112.80	\$90.15	\$82.55	\$79.00	\$75.15	\$72.00
13/64	.2031	.1805	4	1 1/8	4 1/2	24802031	67.55	-	-	-	-	-	-	-
7/32	.2188	.2075	4	1 1/4	5	248007	67.55	0.2041 - 0.2210	112.80	90.15	82.55	79.00	75.15	72.00
15/64	.2344	.2265	4	1 1/2	6	24802344	67.55	0.2211 - 0.2380	112.80	90.15	82.55	79.00	75.15	72.00
1/4	.2500	.2405	4	1 1/2	6	248008	67.55	0.2381 - 0.2530	112.80	90.15	82.55	79.00	75.15	72.00
17/64	.2656	.2485	4	1 1/2	6	24802656	69.05	-	-	-	-	-	-	-
9/32	.2812	.2485	4	1 1/2	6	248009	69.05	0.2531 - 0.2840	114.25	91.70	84.05	80.55	76.60	73.65
19/64	.2969	.2792	4	1 1/2	6	24802969	69.05	-	-	-	-	-	-	-
5/16	.3125	.2792	4	1 1/2	6	248010	69.05	0.2841 - 0.3150	114.25	91.70	84.05	80.55	76.60	73.65
21/64	.3281	.2792	4	1 1/2	6	24803281	71.60	-	-	-	-	-	-	-
11/32	.3438	.2792	4	1 1/2	6	248011	71.60	0.3151 - 0.3470	116.85	94.05	86.55	82.95	79.15	76.10
23/64	.3594	.3105	4	1 3/4	7	24803594	71.60	-	-	-	-	-	-	-
3/8	.3750	.3105	4	1 3/4	7	248012	71.60	0.3471 - 0.3780	116.85	94.05	86.55	82.95	79.15	76.10
25/64	.3906	.3105	4	1 3/4	7	24803906	75.15	-	-	-	-	-	-	-
13/32	.4062	.3105	4	1 3/4	7	248013	75.15	0.3781 - 0.4090	120.25	97.65	90.10	86.50	82.55	79.55
27/64	.4219	.3730	6	1 3/4	7	24804219	87.05	-	-	-	-	-	-	-
7/16	.4375	.3730	6	1 3/4	7	248014	87.05	0.4091 - 0.4410	132.20	109.55	102.05	98.45	94.60	91.55
29/64	.4531	.3730	6	1 3/4	7	24804531	87.80	-	-	-	-	-	-	-
15/32	.4688	.3730	6	1 3/4	7	248015	87.80	0.4411 - 0.4720	133.10	110.30	102.90	99.25	95.30	92.30
31/64	.4844	.4355	6	2	8	24804844	94.05	-	-	-	-	-	-	-
1/2	.5000	.4355	6	2	8	248016	94.05	0.4721 - 0.5030	142.55	118.30	110.20	106.30	102.15	98.95
33/64	.5156	.4355	6	2	8	24805156	96.80	-	-	-	-	-	-	-
17/32	.5312	.4355	6	2	8	248017	96.80	0.5031 - 0.5340	145.20	120.95	112.80	108.95	104.85	101.50
35/64	.5469	.4355	6	2	8	24805469	96.80	-	-	-	-	-	-	-
9/16	.5625	.4355	6	2	8	248018	96.80	0.5341 - 0.5660	145.20	120.95	112.80	108.95	104.85	101.50
37/64	.5781	.4355	6	2	8	24805781	100.45	-	-	-	-	-	-	-
19/32	.5938	.4355	6	2	8	248019	100.45	0.5661 - 0.5970	148.85	124.70	116.50	112.60	108.50	105.25
39/64	.6094	.5615	6	2 1/4	9	24806094	100.45	-	-	-	-	-	-	-

*Quantities of 15 or more: price of fractional size in same size range.

TOOL DIAMETER		MAX. SHANK DIAMETER	NO. OF FLUTES	LENGTH		TYPE 2480 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL			FLUTE & CARBIDE	OVERALL				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
5/8	.6250	.5615	6	2 1/4	9	248020	\$100.45	0.5971 - 0.6280	\$148.85	\$124.70	\$116.50	\$112.60	\$108.50	\$105.25
41/64	.6406	.5615	6	2 1/4	9	24806406	102.35	-	-	-	-	-	-	-
21/32	.6562	.5615	6	2 1/4	9	248021	102.35	0.6281 - 0.6590	150.85	126.55	118.35	114.55	110.30	107.15
43/64	.6719	.5615	6	2 1/4	9	24806719	102.35	-	-	-	-	-	-	-
11/16	.6875	.5615	6	2 1/4	9	248022	102.35	0.6591 - 0.6910	150.85	126.55	118.35	114.55	110.30	107.15
45/64	.7031	.5615	6	2 1/4	9	24807031	107.05	-	-	-	-	-	-	-
23/32	.7188	.5615	6	2 1/4	9	248023	107.05	0.6911 - 0.7220	155.45	131.05	123.20	119.25	115.10	111.75
47/64	.7344	.6245	6	2 1/2	9 1/2	24807344	107.05	-	-	-	-	-	-	-
3/4	.7500	.6245	6	2 1/2	9 1/2	248024	107.05	0.7221 - 0.7530	155.45	131.05	123.20	119.25	115.10	111.75
49/64	.7656	.6245	6	2 1/2	9 1/2	24807656	110.80	-	-	-	-	-	-	-
25/32	.7812	.6245	6	2 1/2	9 1/2	248025	110.80	0.7531 - 0.7840	159.05	134.80	126.70	122.75	118.70	115.35
51/64	.7969	.6245	6	2 1/2	9 1/2	24807969	110.80	-	-	-	-	-	-	-
13/16	.8125	.6245	6	2 1/2	9 1/2	248026	110.80	0.7841 - 0.8160	159.05	134.80	126.70	122.75	118.70	115.35
53/64	.8281	.6245	6	2 1/2	9 1/2	24808281	115.20	-	-	-	-	-	-	-
27/32	.8438	.6245	6	2 1/2	9 1/2	248027	115.20	0.8161 - 0.8470	163.50	139.15	131.05	127.35	123.25	119.85
55/64	.8594	.7495	6	2 5/8	10	24808594	115.20	-	-	-	-	-	-	-
7/8	.8750	.7495	6	2 5/8	10	248028	119.55	0.8471 - 0.8780	169.65	144.55	136.10	132.10	127.75	124.35
57/64	.8906	.7495	6	2 5/8	10	24808906	139.10	-	-	-	-	-	-	-
29/32	.9062	.7495	6	2 5/8	10	248029	139.10	0.8781 - 0.9090	189.40	164.25	155.70	151.70	147.40	144.00
59/64	.9219	.7495	8	2 5/8	10	24809219	139.10	-	-	-	-	-	-	-
15/16	.9375	.7495	8	2 5/8	10	248030	139.10	0.9091 - 0.9410	189.40	164.25	155.70	151.70	147.40	144.00
61/64	.9531	.7495	8	2 5/8	10	24809531	145.80	-	-	-	-	-	-	-
31/32	.9688	.7495	8	2 5/8	10	248031	145.80	0.9411 - 0.9720	196.05	170.95	162.40	158.35	154.05	150.65
63/64	.9844	.8745	8	2 3/4	10 1/2	24809844	145.80	-	-	-	-	-	-	-
1	1.0000	.8745	8	2 3/4	10 1/2	248032	145.80	0.9721 - 1.0030	196.05	170.95	162.40	158.35	154.05	150.65
1 1/16	1.0625	.8745	8	2 3/4	10 1/2	248034	150.75	1.0031 - 1.0660	198.90	174.65	166.75	162.85	158.70	155.50
1 1/8	1.1250	.8745	8	2 7/8	11	248036	163.30	1.0661 - 1.1280	211.40	187.25	179.15	175.35	171.25	167.90
1 3/16	1.1875	.9995	8	2 7/8	11	248038	178.80	1.1281 - 1.1905	227.00	202.80	194.80	190.90	186.80	183.50
1 1/4	1.2500	.9995	8	3	11 1/2	248040	199.30	1.1906 - 1.2530	247.40	223.25	215.15	211.40	207.25	203.95
1 5/16	1.3125	.9995	8	3	11 1/2	248042	199.30	1.2531 - 1.3155	247.40	223.25	215.15	211.40	207.25	203.95
1 3/8	1.3750	.9995	8	3 1/4	12	248044	202.25	1.3156 - 1.3780	250.30	226.25	218.20	214.40	210.10	207.00
1 7/16	1.4375	.9995	8	3 1/4	12	248046	223.45	1.3781 - 1.4405	271.50	247.40	239.40	235.55	231.30	228.25
1 1/2	1.5000	1.2495	8	3 1/2	12 1/2	248048	268.30	1.4406 - 1.5030	316.40	292.25	284.25	280.30	276.30	273.00

*Quantities of 15 or more: price of fractional size in same size range.

CARBIDE TIPPED FOR REAMING STEEL OVER & UNDER SIZE REAMERS

TYPE 2488 - STRAIGHT FLUTE & SHANK

Cutting diameter tolerance plus .0002" minus .0000".

USE:

These precision ground carbide tipped reamers are very convenient for finishing accurate holes in steel, tough steel alloys and cast steels.

TOOL DIAMETER	MAX. SHANK DIAM.	OVERALL LENGTH	NO. OF FLUTES	TYPE 2488 EDP NO.	PRICE
.1865	.1805	4 1/2	4	248818	\$84.50
.1885	.1805	4 1/2	4	248819	84.50
.2490	.2405	6	4	248824	84.50
.2510	.2405	6	4	248825	84.50
.3115	.2792	6	4	248831	86.00
.3135	.2792	6	4	248832	86.00
.3740	.3105	7	4	248837	88.55
.3760	.3105	7	4	248838	88.55
.4365	.3730	7	6	248843	104.00
.4385	.3730	7	6	248844	104.00
.4990	.4355	8	6	248849	112.30
.5010	.4355	8	6	248850	112.30
Cased set of above 12 reamers				248800	1063.80

CARBIDE TIPPED FOR REAMING STEEL DOWEL PIN SIZE REAMERS

TYPE 2486 - STRAIGHT FLUTE & SHANK

Cutting diameter tolerance plus .0000" minus .0002".

USE:

These precision ground carbide tipped reamers accurately finish dowel pin holes in steels, tough steel alloys and cast steels and result in properly fitted dowel pins subjected to shearing strain - assuring accurate alignment. Should be used in pairs of .0005" and .0020" under fraction size — Note special minus .0002" tolerance.

TOOL DIAMETER	MAX. SHANK DIAM.	OVERALL LENGTH	NO. OF FLUTES	TYPE 2486 EDP NO.	PRICE
.1855	.1805	4 1/2	4	248617	\$84.50
.1870	.1805	4 1/2	4	248618	84.50
.2480	.2405	6	4	248623	84.50
.2495	.2405	6	4	248624	84.50
.3105	.2792	6	4	248630	86.00
.3120	.2792	6	4	248631	86.00
.3730	.3105	7	4	248636	88.55
.3745	.3105	7	4	248637	88.55
.4355	.3730	7	6	248642	104.00
.4370	.3730	7	6	248643	104.00
.4980	.4355	8	6	248648	112.30
.4995	.4355	8	6	248649	112.30
Cased set of above 12 reamers				248600	1063.80



NAS 897 CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT FLUTE LONG CARBIDE - STRAIGHT SHANK



TYPE 2458 - NAS 897 REAMER

National Aerospace Standards.
Type "C" with flute long carbide tips.
Carbide tips brazed to hardened alloy steel bodies.
Precision ground cutting edges.
Straight shank.

OPTIONS:

Decimal sizes priced below.
Cut diam. reduced for step or pilot.
End chamfer other than 45°.
End cutting or corner radius.
Short shank or undersize shank diam.
Flat on shank or tanged shank.

Closer tolerance.
For +.0002" add \$1.00 per tool.
For +.0001" add \$3.00 per tool.

TOOL DIAMETER		MAX. SHANK DIAMETER	NO. OF FLUTES	LENGTH		TYPE 2458 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRAC.	DEC.			FLUTE & CARBIDE	OVERALL				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
3/16	.1875	.1805	4	1 1/8	4 1/2	245806	\$67.55	0.1770 - 0.2040	\$112.80	\$90.15	\$82.55	\$79.00	\$75.15	\$72.00
7/32	.2188	.2075	4	1 1/4	5	245807	67.55	0.2041 - 0.2210	112.80	90.15	82.55	79.00	75.15	72.00
15/64	.2344	.2265	4	1 1/2	6	24582344	67.55	0.2211 - 0.2380	112.80	90.15	82.55	79.00	75.15	72.00
1/4	.2500	.2405	4	1 1/2	6	245808	67.55	0.2381 - 0.2530	112.80	90.15	82.55	79.00	75.15	72.00
9/32	.2812	.2485	4	1 1/2	6	245809	69.05	0.2531 - 0.2840	114.25	91.70	84.05	80.55	76.60	73.65
5/16	.3125	.2792	4	1 1/2	6	245810	69.05	0.2841 - 0.3150	114.25	91.70	84.05	80.55	76.60	73.65
11/32	.3438	.2792	4	1 1/2	6	245811	71.60	0.3151 - 0.3470	116.85	94.05	86.55	82.95	79.15	76.10
3/8	.3750	.3105	4	1 3/4	7	245812	71.60	0.3471 - 0.3780	116.85	94.05	86.55	82.95	79.15	76.10
13/32	.4062	.3105	4	1 3/4	7	245813	75.15	0.3781 - 0.4090	120.25	97.65	90.10	86.50	82.55	79.55
7/16	.4375	.3730	6	1 3/4	7	245814	81.30	0.4091 - 0.4410	126.45	103.90	96.25	92.65	88.80	85.70
15/32	.4688	.3730	6	1 3/4	7	245815	87.80	0.4411 - 0.4720	133.10	110.30	102.90	99.25	95.30	92.30
1/2	.5000	.4355	6	2	8	245816	94.05	0.4721 - 0.5030	142.55	118.30	110.20	106.30	102.15	98.95
17/32	.5312	.4355	6	2	8	245817	96.80	0.5031 - 0.5340	145.20	120.95	112.80	108.95	104.85	101.50
9/16	.5625	.4355	6	2	8	245818	96.80	0.5341 - 0.5660	145.20	120.95	112.80	108.95	104.85	101.50
19/32	.5938	.4355	6	2	8	245819	100.45	0.5661 - 0.5970	148.85	124.70	116.50	112.60	108.50	105.25
5/8	.6250	.5615	6	2 1/4	9	245820	100.45	0.5971 - 0.6280	148.85	124.70	116.50	112.60	108.50	105.25
21/32	.6562	.5615	6	2 1/4	9	245821	102.35	0.6281 - 0.6590	150.85	126.55	118.35	114.55	110.30	107.15
11/16	.6875	.5615	6	2 1/4	9	245822	102.35	0.6591 - 0.6910	150.85	126.55	118.35	114.55	110.30	107.15
23/32	.7188	.5615	6	2 1/4	9	245823	107.05	0.6911 - 0.7220	155.45	131.05	123.20	119.25	115.10	111.75
3/4	.7500	.6245	6	2 1/2	9 1/2	245824	107.05	0.7221 - 0.7530	155.45	131.05	123.20	119.25	115.10	111.75
25/32	.7812	.6245	6	2 1/2	9 1/2	245825	110.80	0.7531 - 0.7840	159.05	134.80	126.70	122.75	118.70	115.35
13/16	.8125	.6245	6	2 1/2	9 1/2	245826	110.80	0.7841 - 0.8160	159.05	134.80	126.70	122.75	118.70	115.35
27/32	.8438	.6245	6	2 1/2	9 1/2	245827	115.20	0.8161 - 0.8470	163.50	139.15	131.05	127.35	123.25	119.85
7/8	.8750	.7495	6	2 5/8	10	245828	119.55	0.8471 - 0.8780	169.65	144.55	136.10	132.10	127.75	124.35
29/32	.9062	.7495	6	2 5/8	10	245829	139.10	0.8781 - 0.9090	189.40	164.25	155.70	151.70	147.40	144.00
15/16	.9375	.7495	8	2 5/8	10	245830	139.10	0.9091 - 0.9410	189.40	164.25	155.70	151.70	147.40	144.00
31/32	.9688	.7495	8	2 5/8	10	245831	145.80	0.9411 - 0.9720	196.05	170.95	162.40	158.35	154.05	150.65
1	1.0000	.8745	8	2 3/4	10 1/2	245832	145.80	0.9721 - 1.0030	196.05	170.95	162.40	158.35	154.05	150.65
1 1/16	1.0625	.8745	8	2 3/4	10 1/2	245834	150.75	1.0031 - 1.0660	198.90	174.65	166.75	162.85	158.70	155.50
1 1/8	1.1250	.8745	8	2 7/8	11	245836	163.30	1.0661 - 1.1280	211.40	187.25	179.15	175.35	171.25	167.90
1 3/16	1.1875	.9995	8	2 7/8	11	245838	170.65	1.1281 - 1.1905	218.85	194.80	186.70	182.85	178.70	175.40
1 1/4	1.2500	.9995	8	3	11 1/2	245840	184.45	1.1906 - 1.2530	232.60	208.60	200.40	196.65	192.45	189.20
1 5/16	1.3125	.9995	8	3	11 1/2	245842	189.55	1.2531 - 1.3155	237.80	213.70	205.55	201.75	197.60	194.30
1 3/8	1.3750	.9995	8	3 1/4	12	245844	202.25	1.3156 - 1.3780	250.30	226.25	218.20	214.40	210.10	207.00
1 7/16	1.4375	.9995	8	3 1/4	12	245846	219.00	1.3781 - 1.4405	267.15	243.05	234.95	231.05	227.00	223.70
1 1/2	1.5000	1.2495	8	3 1/2	12 1/2	245848	225.35	1.4406 - 1.5030	273.50	249.35	241.30	237.45	233.40	230.10
1 9/16	1.5625	1.2495	8	3 1/2	12 1/2	245850	353.95	1.5031 - 1.5660	402.20	378.15	370.05	366.10	362.00	358.65
1 5/8	1.6250	1.2495	8	3 1/2	13	245852	366.05	1.5661 - 1.6280	414.35	390.25	382.15	378.30	374.10	370.90
1 11/16	1.6875	1.2495	8	3 1/2	13	245854	401.95	1.6281 - 1.6910	450.20	426.15	418.00	414.20	410.00	406.75
1 3/4	1.7500	1.2495	10	3 1/2	13 1/2	245856	401.95	1.6911 - 1.7530	450.20	426.15	418.00	414.20	410.00	406.75
1 13/16	1.8125	1.4995	10	3 1/2	13 1/2	245858	411.40	1.7531 - 1.8160	459.55	435.50	427.40	423.55	419.30	416.15
1 7/8	1.8750	1.4995	10	3 1/2	14	245860	431.45	1.8161 - 1.8780	479.65	455.50	447.35	443.65	439.50	436.20
1 15/16	1.9375	1.4995	10	3 1/2	14	245862	457.35	1.8781 - 1.9410	505.55	481.40	473.35	469.55	465.40	462.15
2	2.0000	1.4995	12	3 1/2	14	245864	456.65	1.9411 - 2.0030	504.95	480.75	472.80	468.90	464.75	461.50
2 1/8	2.1250	1.4995	12	3 1/2	14 1/2	245868	848.50	2.0031 - 2.1280	896.75	872.60	864.50	860.80	856.50	853.30
2 1/4	2.2500	1.7495	12	3 1/2	14 1/2	245872	911.30	2.1281 - 2.2530	959.55	935.40	927.40	923.60	919.35	916.20
2 3/8	2.3750	1.7495	12	3 1/2	15	245876	943.00	2.2531 - 2.3780	991.20	967.05	958.95	955.20	951.00	947.80
2 1/2	2.5000	1.7495	12	3 1/2	15	245880	943.00	2.3781 - 2.5030	991.20	967.05	958.95	955.20	951.00	947.80

*Quantities of 15 or more: price of fractional size in same size range.



EXTENDED LENGTH REAMERS

CARBIDE TIPPED - STRAIGHT FLUTE LONG CARBIDE - STRAIGHT SHANK



TYPE 2458EL - EXTENDED LENGTH REAMER

Extended length version of type 2458 found on page 38.
 Extended length reamers provided with controlled shank.
 Specify overall length when ordering (centers supplied only at maximum overall length).
 Precision ground cutting edges.
 Straight shank.

OPTIONS:

See page 60

Closer tolerance.

For +.0002" add \$1.00 per tool.

For +.0001" add \$3.00 per tool.

TOOL DIAMETER RANGE	MAX. SHANK DIAMETER	NO. OF FLUTES	LENGTH		TYPE 2458EL EDP NO.	PRICE EACH - FINISHED TO DECIMAL SIZE					
			FLUTE	OVERALL RANGE		1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14**
* 0.1121-0.1280	.1099	4	1 1/2	2 3/32 - 6	245804EL	\$465.10	\$407.35	\$387.95	\$378.80	\$369.00	\$361.10
* 0.1281-0.1435	.1255	4	1 1/2	2 17/32 - 6 1/2	2458045EL	466.75	409.05	389.75	380.40	370.35	362.70
* 0.1436-0.1590	.1411	4	1 1/2	2 17/32 - 7	245805EL	474.55	416.70	397.35	388.05	378.25	370.30
* 0.1591-0.1750	.1567	4	1 1/2	2 29/32 - 8	2458055EL	483.50	425.55	406.35	397.10	387.15	379.40
* 0.1751-0.1910	.1724	4	1 1/2	4 17/32 - 9	245806EL	496.30	438.50	419.00	410.05	399.90	392.20
* 0.1911-0.2210	.1880	4	1 1/2	5 1/32 - 10	245807EL	512.85	455.40	435.95	426.80	416.75	409.05
* 0.2211-0.2530	.2193	4	1 1/2	6 1/32 - 12	245808EL	546.20	488.35	469.10	459.90	450.00	442.25
* 0.2531-0.2840	.2505	4	1 1/2	6 1/32 - 12	245809EL	574.65	516.85	497.65	488.20	478.50	470.45
0.2841-0.3150	.2792	4	1 1/2	6 1/32 - 12	245810EL	285.15	244.75	231.25	224.75	217.85	212.45
0.3151-0.3470	.2792	4	1 1/2	6 1/32 - 12	245811EL	285.15	244.75	231.25	224.75	217.85	212.45
0.3471-0.3780	.3105	4	1 3/4	7 1/32 - 14	245812EL	294.45	254.15	240.65	234.05	227.15	221.70
0.3781-0.4090	.3105	4	1 3/4	7 1/32 - 14	245813EL	294.45	254.15	240.65	234.05	227.15	221.70
0.4091-0.4410	.3730	6	1 3/4	7 1/32 - 14	245814EL	303.85	263.35	249.95	243.35	236.50	231.05
0.4411-0.4720	.3730	6	1 3/4	7 1/32 - 14	245815EL	303.85	263.35	249.95	243.35	236.50	231.05
0.4721-0.5030	.4355	6	2	8 1/32 - 16	245816EL	310.15	269.65	256.20	249.70	242.85	237.35
0.5031-0.5340	.4355	6	2	8 1/32 - 16	245817EL	310.15	269.65	256.20	249.70	242.85	237.35
0.5341-0.5660	.4355	6	2	8 1/32 - 16	245818EL	315.90	275.45	261.90	255.50	248.55	243.15
0.5661-0.5970	.4355	6	2	8 1/32 - 16	245819EL	315.90	275.45	261.90	255.50	248.55	243.15
0.5971-0.6280	.5615	6	2 1/4	9 1/32 - 18	245820EL	322.55	282.15	268.55	262.20	255.30	249.80
0.6281-0.6590	.5615	6	2 1/4	9 1/32 - 18	245821EL	322.55	282.15	268.55	262.20	255.30	249.80
0.6591-0.6910	.5615	6	2 1/4	9 1/32 - 18	245822EL	323.50	283.05	269.50	263.05	256.20	250.70
0.6911-0.7220	.5615	6	2 1/4	9 1/32 - 18	245823EL	323.50	283.05	269.50	263.05	256.20	250.70
0.7221-0.7530	.6245	6	2 1/2	9 17/32 - 18	245824EL	347.20	306.75	293.20	286.85	280.00	274.45
0.7531-0.7840	.6245	6	2 1/2	9 17/32 - 18	245825EL	421.35	382.85	369.90	363.85	357.25	352.10
0.7841-0.8160	.6245	6	2 1/2	9 17/32 - 18	245826EL	434.75	396.25	383.35	377.30	370.70	365.45
0.8161-0.8470	.6245	6	2 1/2	9 17/32 - 18	245827EL	439.80	401.30	388.35	382.25	375.70	370.55
0.8471-0.8780	.7495	6	2 5/8	10 1/32 - 18	245828EL	449.15	410.50	397.65	391.65	385.00	379.75
0.8781-0.9090	.7495	6	2 5/8	10 1/32 - 18	245829EL	468.00	429.45	416.60	410.45	403.90	398.70
0.9091-0.9410	.7495	8	2 5/8	10 1/32 - 18	245830EL	472.75	434.10	421.25	415.15	408.55	403.45
0.9411-0.9720	.7495	8	2 5/8	10 1/32 - 18	245831EL	477.20	438.70	425.80	419.70	413.10	407.90
0.9721-1.0030	.8745	8	2 3/4	10 17/32 - 18	245832EL	488.30	449.85	436.90	430.85	424.15	419.00

*Solid Carbide

**Quantities of 15 or more: contact Rock River Tool Specials Dept.



NAS 897 CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT FLUTE - STRAIGHT SHANK



OPTIONS:

- Decimal sizes priced below.
- Cut diam. reduced for step or pilot.
- End chamfer other than 45°.
- End cutting or corner radius.
- Short shank or undersize shank diam.
- Flat on shank or tanged shank.

TYPE 2408 - NAS 897 REAMER

National Aerospace Standards.
 Type "C" with short carbide tip.
 Carbide tips brazed to hardened alloy steel bodies.
 Precision ground cutting edges.
 Straight polished flutes.
 Straight shank.

Closer tolerance.
 For +.0002" add \$1.00 per tool.
 For +.0001" add \$3.00 per tool.

TOOL DIAMETER		MAX. SHANK DIAMETER	NO. OF FLUTES	LENGTH			TYPE 2408 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRAC.	DEC.			FLUTE	CARBIDE	OVERALL				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
5/32	.1562	.1510	4	1	1/2	4	240805	\$61.75	0.1560 - 0.1769	\$106.95	\$84.10	\$76.60	\$73.05	\$69.05	\$66.05
3/16	.1875	.1805	4	1 1/8	1/2	4 1/2	240806	56.60	0.1770 - 0.2040	100.60	78.50	71.10	67.55	63.85	60.85
7/32	.2188	.2075	4	1 1/4	1/2	5	240807	56.60	0.2041 - 0.2210	100.60	78.50	71.10	67.55	63.85	60.85
15/64	.2344	.2265	4	1 1/2	1/2	6	24082344	60.05	0.2211 - 0.2380	104.00	81.95	74.50	71.05	67.25	64.30
1/4	.2500	.2405	4	1 1/2	1/2	6	240808	56.95	0.2381 - 0.2530	100.85	78.90	71.55	68.00	64.15	61.25
9/32	.2812	.2485	4	1 1/2	1/2	6	240809	58.00	0.2531 - 0.2840	102.10	80.00	72.70	69.05	65.35	62.25
5/16	.3125	.2792	4	1 1/2	1/2	6	240810	58.00	0.2841 - 0.3150	102.10	80.00	72.70	69.05	65.35	62.25
3/8	.3125	.2792	6	1 1/2	1/2	6	240890	63.85	0.2841 - 0.3150	107.75	85.75	78.35	74.90	71.10	68.15
11/32	.3438	.2792	4	1 1/2	5/8	6	240811	60.30	0.3151 - 0.3470	104.20	82.25	74.85	71.40	67.50	64.60
11/32	.3438	.2792	6	1 1/2	5/8	6	240891	66.20	0.3151 - 0.3470	110.15	88.10	80.70	77.20	73.40	70.45
3/8	.3750	.3105	4	1 3/4	5/8	7	240812	55.30	0.3471 - 0.3780	95.55	75.40	68.70	65.50	62.00	59.25
3/8	.3750	.3105	6	1 3/4	5/8	7	240892	60.65	0.3471 - 0.3780	101.05	80.80	74.15	70.90	67.40	64.70
13/32	.4062	.3105	4	1 3/4	5/8	7	240813	63.15	0.3781 - 0.4090	107.15	85.10	77.75	74.20	70.30	67.45
13/32	.4062	.3105	6	1 3/4	5/8	7	240893	67.30	0.3781 - 0.4090	111.30	89.25	81.95	78.35	74.55	71.65
7/16	.4375	.3730	6	1 3/4	5/8	7	240814	67.30	0.4091 - 0.4410	111.30	89.25	81.95	78.35	74.55	71.65
15/32	.4688	.3730	6	1 3/4	5/8	7	240815	68.25	0.4411 - 0.4720	112.30	90.25	82.90	79.35	75.65	72.70
1/2	.5000	.4355	6	2	5/8	8	240816	80.70	0.4721 - 0.5030	129.25	104.90	96.80	92.95	88.80	85.50
17/32	.5312	.4355	6	2	5/8	8	240817	87.95	0.5031 - 0.5340	136.25	112.00	104.00	100.05	96.05	92.65
9/16	.5625	.4355	6	2	5/8	8	240818	87.95	0.5341 - 0.5660	136.25	112.00	104.00	100.05	96.05	92.65
19/32	.5938	.4355	6	2	5/8	8	240819	91.55	0.5661 - 0.5970	139.90	115.65	107.45	103.65	99.55	96.20
5/8	.6250	.5615	6	2 1/4	5/8	9	240820	91.55	0.5971 - 0.6280	139.90	115.65	107.45	103.65	99.55	96.20
21/32	.6562	.5615	6	2 1/4	5/8	9	240821	93.10	0.6281 - 0.6590	141.60	117.20	109.05	105.25	101.05	97.85
11/16	.6875	.5615	6	2 1/4	5/8	9	240822	93.10	0.6591 - 0.6910	141.60	117.20	109.05	105.25	101.05	97.85
23/32	.7188	.5615	6	2 1/4	5/8	9	240823	97.50	0.6911 - 0.7220	145.85	121.50	113.55	109.55	105.50	102.15
3/4	.7500	.6245	6	2 1/2	3/4	9 1/2	240824	97.50	0.7221 - 0.7530	145.85	121.50	113.55	109.55	105.50	102.15
25/32	.7812	.6245	6	2 1/2	3/4	9 1/2	240825	100.60	0.7531 - 0.7840	149.05	124.80	116.60	112.70	108.55	105.45
13/16	.8125	.6245	6	2 1/2	3/4	9 1/2	240826	100.60	0.7841 - 0.8160	149.05	124.80	116.60	112.70	108.55	105.45
27/32	.8438	.6245	6	2 1/2	3/4	9 1/2	240827	104.70	0.8161 - 0.8470	152.95	128.75	120.70	116.85	112.60	109.45
7/8	.8750	.7495	6	2 5/8	3/4	10	240828	108.55	0.8471 - 0.8780	158.85	133.65	125.15	121.25	117.00	113.60
29/32	.9062	.7495	6	2 5/8	3/4	10	240829	126.45	0.8781 - 0.9090	176.70	151.50	143.15	139.10	134.75	131.35
15/16	.9375	.7495	8	2 5/8	3/4	10	240830	126.45	0.9091 - 0.9410	176.70	151.50	143.15	139.10	134.75	131.35
31/32	.9688	.7495	8	2 5/8	3/4	10	240831	132.45	0.9411 - 0.9720	182.65	157.45	149.15	145.00	140.65	137.25
1	1.0000	.8745	8	2 3/4	3/4	10 1/2	240832	132.45	0.9721 - 1.0030	182.65	157.45	149.15	145.00	140.65	137.25
1 1/16	1.0625	.8745	8	2 3/4	3/4	10 1/2	240834	137.15	1.0031 - 1.0660	185.25	161.25	153.10	149.25	145.05	141.85
1 1/8	1.1250	.8745	8	2 7/8	7/8	11	240836	148.30	1.0661 - 1.1280	196.40	172.25	164.25	160.30	156.20	152.95
1 3/16	1.1875	.9995	8	2 7/8	7/8	11	240838	155.80	1.1281 - 1.1905	203.95	179.90	171.80	167.90	163.80	160.65
1 1/4	1.2500	.9995	8	3	7/8	11 1/2	240840	164.70	1.1906 - 1.2530	212.85	188.80	180.60	176.80	172.75	169.45
1 5/16	1.3125	.9995	8	3	7/8	11 1/2	240842	173.30	1.2531 - 1.3155	221.50	197.50	189.35	185.50	181.30	178.05
1 3/8	1.3750	.9995	8	3 1/4	7/8	12	240844	183.90	1.3156 - 1.3780	232.15	207.95	199.80	196.05	191.75	188.60
1 7/16	1.4375	.9995	8	3 1/4	7/8	12	240846	204.95	1.3781 - 1.4405	253.25	228.95	220.95	217.20	212.90	209.80
1 1/2	1.5000	1.2495	8	3 1/2	7/8	12 1/2	240848	216.65	1.4406 - 1.5030	264.85	240.75	232.60	228.85	224.65	221.40

*Quantities of 15 or more: price of fractional size in same size range.



CHUCKING REAMERS

CARBIDE TIPPED - RIGHT OR LEFT SPIRAL FLUTES - STRAIGHT SHANK



**TYPE 2410 - RIGHT SPIRAL FLUTES
STRAIGHT SHANK**

USE:

Right spiral flutes have greater chip clearing ability for use with ductile materials, highly abrasive materials or blind holes. Spiral flutes tend to bridge interruptions such as keyways, slots or intersecting holes, permitting better finishes.

BOTH TYPES:

Straight shanks and polished spiral flutes.
Carbide tips brazed to one piece hardened alloy steel bodies.
Cutting diameter tolerance plus .0003" minus .0000".



**TYPE 2420 - LEFT SPIRAL FLUTES
STRAIGHT SHANK**

USE:

Left spiral flutes should only be used on through holes for heat treated steels, hard cast iron and other hard materials. Finishes are much better as spiral flutes tend to bridge interruptions such as keyways, slots or intersecting holes.

OPTIONS:

Intermediate decimal & metric sizes (priced as indicated in extended table below).
Cutting diameter reduced for small steps or pilot.
Radius end or end chamfer other than 45°. End cutting.
Rose grind (twice normal back taper).
Short shank or undersize shank diameter.
Flat on shank or tanged shank.
Semi-finished type reamers in stock (see page 73).
Closer tolerance.
For .0002" add \$1.00 per tool.
For .0001" add \$3.00 per tool.

TOOL DIAMETER		SHANK DIAMETER	NUMBER OF FLUTES	LENGTH		TYPE 2410 RIGHT EDP NO.	PRICE	TYPE 2420 LEFT EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL			FLUTE	OVERALL						1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
3/16	.1875	1/64	4	1 1/8	4 1/2	241006	\$66.35	242006	\$66.35	0.1770 - 0.2040	\$109.45	\$87.80	\$80.60	\$77.10	\$73.40	\$70.65
7/32	.2188	1/64	4	1 1/4	5	241007	66.35	242007	66.35	0.2041 - 0.2210	109.45	87.80	80.60	77.10	73.40	70.65
15/64	.2344	7/32	4	1 1/2	6	24102344	66.35	24202344	66.35	0.2211 - 0.2380	109.45	87.80	80.60	77.10	73.40	70.65
1/4	.2500	1/64	4	1 1/2	6	241008	66.35	242008	66.35	0.2381 - 0.2530	109.45	87.80	80.60	77.10	73.40	70.65
9/32	.2812	1/64	4	1 1/2	6	241009	66.60	242009	66.60	0.2531 - 0.2840	109.55	88.00	80.70	77.30	73.65	70.75
5/16	.3125	9/32	4	1 1/2	6	241010	66.60	242010	66.60	0.2841 - 0.3150	109.55	88.00	80.70	77.30	73.65	70.75
11/32	.3438	9/32	4	1 1/2	6	241011	73.20	242011	73.20	0.3151 - 0.3470	116.30	94.65	87.45	84.05	80.35	77.55
3/8	.3750	5/16	4	1 3/4	7	241012	73.90	242012	73.90	0.3471 - 0.3780	116.95	95.35	88.10	84.80	81.15	78.20
13/32	.4062	5/16	4	1 3/4	7	241013	77.20	242013	77.20	0.3781 - 0.4090	120.35	98.75	91.55	88.05	84.30	81.45
7/16	.4375	3/8	4	1 3/4	7	241014	80.35	242014	80.35	0.4091 - 0.4410	123.35	101.80	94.60	91.15	87.45	84.55
15/32	.4688	3/8	4	1 3/4	7	241015	85.25	242015	85.25	0.4411 - 0.4720	128.35	106.75	99.60	96.10	92.45	89.40
1/2	.5000	7/16	6	2	8	241016	88.55	242016	88.55	0.4721 - 0.5030	132.60	110.40	103.05	99.60	95.85	92.80
17/32	.5312	7/16	6	2	8	241017	91.15	242017	91.15	0.5031 - 0.5340	135.40	113.20	105.85	102.25	98.55	95.50
9/16	.5625	7/16	6	2	8	241018	91.15	242018	91.15	0.5341 - 0.5660	135.40	113.20	105.85	102.25	98.55	95.50
19/32	.5938	7/16	6	2	8	241019	93.90	242019	93.90	0.5661 - 0.5970	138.10	115.95	108.50	104.95	101.20	98.15
5/8	.6250	9/16	6	2 1/4	9	241020	93.90	242020	93.90	0.5971 - 0.6280	138.10	115.95	108.50	104.95	101.20	98.15
21/32	.6562	9/16	6	2 1/4	9	241021	96.60	242021	96.60	0.6281 - 0.6590	140.85	118.70	111.20	107.70	103.80	101.00
11/16	.6875	9/16	6	2 1/4	9	241022	102.90	242022	102.90	0.6591 - 0.6910	147.00	124.85	117.45	113.90	110.15	107.20
23/32	.7188	9/16	6	2 1/4	9	241023	104.25	242023	104.25	0.6911 - 0.7220	148.45	126.25	118.85	115.35	111.60	108.55
3/4	.7500	5/8	6	2 1/2	9 1/2	241024	105.90	242024	105.90	0.7221 - 0.7530	150.05	127.95	120.55	117.00	113.20	110.20
25/32	.7812	5/8	6	2 1/2	9 1/2	241025	108.55	242025	108.55	0.7531 - 0.7840	152.85	130.75	123.30	119.75	115.95	112.95
13/16	.8125	5/8	6	2 1/2	9 1/2	241026	108.55	242026	108.55	0.7841 - 0.8160	152.85	130.75	123.30	119.75	115.95	112.95
27/32	.8438	5/8	6	2 1/2	9 1/2	241027	114.55	242027	114.55	0.8161 - 0.8470	158.85	136.60	129.25	125.70	121.85	118.85
7/8	.8750	3/4	6	2 5/8	10	241028	118.85	242028	118.85	0.8471 - 0.8780	164.75	141.80	133.95	130.40	126.45	123.35
29/32	.9062	3/4	6	2 5/8	10	241029	138.45	242029	138.45	0.8781 - 0.9090	184.30	161.40	153.75	150.00	146.05	143.05
15/16	.9375	3/4	8	2 5/8	10	241030	138.45	242030	138.45	0.9091 - 0.9410	184.30	161.40	153.75	150.00	146.05	143.05
31/32	.9688	3/4	8	2 5/8	10	241031	145.20	242031	145.20	0.9411 - 0.9720	191.15	168.10	160.55	156.75	152.80	149.80
1	1.0000	7/8	8	2 3/4	10 1/2	241032	145.20	242032	145.20	0.9721 - 1.0030	191.15	168.10	160.55	156.75	152.80	149.80
1 1/16	1.0625	7/8	8	2 3/4	10 1/2	241034	155.80	242034	155.80	1.0031 - 1.0660	201.70	178.70	171.05	167.25	163.35	160.30
1 1/8	1.1250	7/8	8	2 7/8	11	241036	160.65	242036	160.65	1.0661 - 1.1280	206.40	183.50	175.80	172.15	168.20	165.15
1 1/4	1.1875	1	8	2 7/8	11	241038	168.80	242038	168.80	1.1281 - 1.1905	214.60	191.60	183.95	180.25	176.40	173.25
1 3/8	1.2500	1	8	3	11 1/2	241040	178.65	242040	178.65	1.1906 - 1.2530	224.50	201.50	193.80	190.15	186.20	183.20
1 5/8	1.3125	1	8	3	11 1/2	241042	197.60	242042	197.60	1.2531 - 1.3155	243.60	220.60	212.75	209.20	205.25	202.20
1 3/4	1.3750	1	8	3 1/4	12	241044	216.60	242044	216.60	1.3156 - 1.3780	262.40	239.50	231.80	228.20	224.15	221.10
1 7/8	1.4375	1 1/4	8	3 1/4	12	241046	229.40	242046	229.40	1.3781 - 1.4405	275.30	252.30	244.60	241.05	237.05	233.90
1 1/2	1.5000	1 1/4	8	3 1/2	12 1/2	241048	242.40	242048	242.40	1.4406 - 1.5030	288.20	265.20	257.65	253.75	250.00	246.85

*Quantities of 15 or more: price of fractional size in same size range.



EXPANSION CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT FLUTE LONG CARBIDE AND STRAIGHT SHANK



TYPE 2465 - FINISHED FRACTIONAL SIZES

Expansion screw permits expansion of cutting diameter for re-grinding after wear without reinserting carbide. Straight shank and straight polished flutes. Flute long carbide tips brazed to one piece alloy steel bodies. Cutting diameter tolerance plus .0003" minus .0000". Guaranteed minimum expansion - see pg. 44.

OPTIONS: See page 44.

USE:

Expansion reamers are recommended for reaming abrasive materials and as the diameter wears down, the reamers can be expanded many times by tightening the end screw and regrinding it to original size. Because this procedure can be repeated several times, the expansion reamer is a very economical tool. Expansion reamers should not be expanded to use at diameters larger than listed diameters nor be considered as adjustable for use in producing holes of several sizes. The expansion screw should never be loosened.

TOOL DIAMETER		SHANK DIAM.	NO. OF FLUTES	LENGTH		TYPE 2465 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL			FLUTE & CARBIDE	OVERALL				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
5/16	.3125	9/32	4	1	6	246510	\$86.90	0.2841 - 0.3150	\$132.15	\$109.50	\$101.80	\$98.40	\$94.55	\$91.45
1/32	.3438	9/32	4	1	6	246511	86.90	0.3151 - 0.3470	132.15	109.50	101.80	98.40	94.55	91.45
3/8	.3750	5/16	4	1	7	246512	81.45	0.3471 - 0.3780	123.95	102.65	95.45	92.15	88.55	85.65
19/32	.4062	3/16	4	1	7	246513	86.50	0.3781 - 0.4090	128.75	107.60	100.45	97.05	93.45	90.60
7/16	.4375	3/8	4	1	7	246514	86.50	0.4091 - 0.4410	128.75	107.60	100.45	97.05	93.45	90.60
15/32	.4688	3/8	4	1	7	246515	91.70	0.4411 - 0.4720	133.85	112.70	105.70	102.25	98.70	95.90
1/2	.5000	7/16	6	1	8	246516	91.70	0.4721 - 0.5030	133.85	112.70	105.70	102.25	98.70	95.90
17/32	.5312	7/16	6	1	8	246517	93.90	0.5031 - 0.5340	136.35	115.15	107.95	104.70	101.00	98.10
9/16	.5625	7/16	6	1 1/8	8	246518	93.90	0.5341 - 0.5660	136.35	115.15	107.95	104.70	101.00	98.10
19/32	.5938	7/16	6	1 1/8	8	246519	98.05	0.5661 - 0.5970	140.45	119.25	112.20	108.75	105.05	102.20
5/8	.6250	9/16	6	1 1/4	9	246520	98.05	0.5971 - 0.6280	140.45	119.25	112.20	108.75	105.05	102.20
21/32	.6562	9/16	6	1 1/4	9	246521	107.25	0.6281 - 0.6590	149.50	128.35	121.25	117.95	114.25	111.35
11/16	.6875	9/16	6	1 1/4	9	246522	107.25	0.6591 - 0.6910	149.50	128.35	121.25	117.95	114.25	111.35
23/32	.7188	9/16	6	1 1/4	9	246523	111.15	0.6911 - 0.7220	153.65	132.30	125.15	121.85	118.20	115.35
3/4	.7500	5/8	6	1 3/8	9 1/2	246524	111.15	0.7221 - 0.7530	153.65	132.30	125.15	121.85	118.20	115.35
25/32	.7812	5/8	6	1 3/8	9 1/2	246525	119.85	0.7531 - 0.7840	162.30	141.05	133.80	130.60	126.90	124.05
13/16	.8125	5/8	6	1 3/8	9 1/2	246526	119.85	0.7841 - 0.8160	162.30	141.05	133.80	130.60	126.90	124.05
27/32	.8438	5/8	6	1 3/8	9 1/2	246527	124.65	0.8161 - 0.8470	166.90	145.75	138.65	135.20	131.65	128.70
7/8	.8750	3/4	6	1 1/2	10	246528	129.30	0.8471 - 0.8780	173.10	151.20	143.70	140.40	136.55	133.60
29/32	.9062	3/4	6	1 1/2	10	246529	137.60	0.8781 - 0.9090	181.60	159.50	152.20	148.70	144.90	141.90
15/16	.9375	3/4	8	1 1/2	10	246530	137.60	0.9091 - 0.9410	181.60	159.50	152.20	148.70	144.90	141.90
31/32	.9688	3/4	8	1 1/2	10	246531	143.05	0.9411 - 0.9720	186.85	164.90	157.45	154.00	150.20	147.20
1	1.0000	7/8	8	1 5/8	10 1/2	246532	143.05	0.9721 - 1.0030	186.85	164.90	157.45	154.00	150.20	147.20
1 1/32	1.0312	7/8	8	1 5/8	10 1/2	246533	156.70	-	-	-	-	-	-	-
1 1/16	1.0625	7/8	8	1 3/8	10 1/2	246534	156.70	1.0031 - 1.0660	200.60	178.65	171.25	167.75	164.00	160.95
1 3/32	1.0938	7/8	8	1 3/8	11	246535	156.70	-	-	-	-	-	-	-
1 1/8	1.1250	7/8	8	1 3/8	11	246536	156.70	1.0661 - 1.1280	200.60	178.65	171.25	167.75	164.00	160.95
1 3/16	1.1875	1	8	1 3/8	11	246538	171.00	1.1281 - 1.1905	214.95	192.90	185.50	182.00	178.15	175.35
1 1/4	1.2500	1	8	1 7/8	11 1/2	246540	171.00	1.1906 - 1.2530	214.95	192.90	185.50	182.00	178.15	175.35
1 3/16	1.3125	1	8	1 7/8	11 1/2	246542	189.50	1.2531 - 1.3155	233.55	211.50	204.20	200.60	196.85	194.00
1 3/8	1.3750	1	8	2	12	246544	198.50	1.3156 - 1.3780	242.45	220.35	213.05	209.70	205.70	202.80
1 7/16	1.4375	1 1/4	8	2	12	246546	234.55	1.3781 - 1.4405	281.45	257.95	250.05	246.25	242.25	239.20
1 1/2	1.5000	1 1/4	8	2 1/8	12 1/2	246548	241.40	1.4406 - 1.5030	288.30	264.70	257.00	253.35	249.20	246.00
1 9/16	1.5625	1 1/4	8	2 1/8	12 1/2	246550	317.05	1.5031 - 1.5660	363.85	340.55	332.50	328.70	324.80	321.60
1 5/8	1.6250	1 1/4	8	2 1/4	13	246552	317.05	1.5661 - 1.6280	363.85	340.55	332.50	328.70	324.80	321.60
1 11/16	1.6875	1 1/4	8	2 1/4	13	246554	351.10	1.6281 - 1.6910	398.00	374.50	366.70	362.90	359.00	355.65
1 3/4	1.7500	1 1/4	10	2 3/8	13 1/2	246556	351.10	1.6911 - 1.7530	398.00	374.50	366.70	362.90	359.00	355.65
1 13/16	1.8125	1 1/2	10	2 3/8	13 1/2	246558	415.85	1.7531 - 1.8160	462.60	439.10	431.30	427.50	423.55	420.35
1 7/8	1.8750	1 1/2	10	2 1/2	14	246560	415.85	1.8161 - 1.8780	462.60	439.10	431.30	427.50	423.55	420.35
1 15/16	1.9375	1 1/2	10	2 1/2	14	246562	454.30	1.8781 - 1.9410	501.05	477.65	469.75	465.90	462.05	458.80
2	2.0000	1 1/2	12	2 1/2	14	246564	454.30	1.9411 - 2.0030	501.05	477.65	469.75	465.90	462.05	458.80
2 1/8	2.1250	1 1/2	12	2 3/4	14 1/2	246568	737.80	2.0031 - 2.1280	784.75	761.25	753.35	749.70	745.65	742.35
2 1/4	2.2500	1 3/4	12	2 3/4	14 1/2	246572	792.45	2.1281 - 2.2530	839.15	815.80	807.90	804.15	800.15	796.95
2 3/8	2.3750	1 3/4	12	3	15	246576	820.00	2.2531 - 2.3780	866.95	843.50	835.55	831.75	827.80	824.60
2 1/2	2.5000	1 3/4	12	3	15	246580	820.00	2.3781 - 2.5030	866.95	843.50	835.55	831.75	827.80	824.60

*Quantities of 15 or more: price of fractional size in same size range.



EXPANSION CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT FLUTE LONG CARBIDE & STRAIGHT SHANK

TYPE 2465 - METRIC



NOTE: Tool diameter in millimeters (mm); all other dimensions in inches.

TOOL DIAMETER		TYPE 2465 METRIC EDP NO.	METRIC PRICE	DIMENSIONS				SPECIAL METRIC SIZE RANGE	PRICE EACH - FINISHED TO METRIC SIZE						
mm	INCH			SHANK DIAM.	NO. OF FLUTES	LENGTH			1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14	OVER 14
		FLUTE & CARBIDE	OVERALL												
7.5	.2953	2465075	\$101.80	5/32	4	1	6	7.215 -8.001	\$136.00	\$113.35	\$105.80	\$102.15	\$98.40	\$95.20	\$90.80
8.0	.3150	2465080	101.80	5/32	4	1	6	-	-	-	-	-	-	-	-
8.5	.3346	2465085	101.80	5/32	4	1	6	8.002 -8.814	136.00	113.35	105.80	102.15	98.40	95.20	90.80
9.0	.3543	2465090	95.45	5/16	4	1	7	8.815 -9.601	127.45	106.25	99.10	95.85	92.15	89.25	85.15
9.5	.3740	2465095	95.45	5/16	4	1	7	-	-	-	-	-	-	-	-
10.0	.3937	2465100	100.45	5/16	4	1	7	9.602 -10.389	132.30	111.15	104.15	100.65	97.05	94.05	90.10
10.5	.4134	2465105	100.45	3/8	4	1	7	10.390 -11.201	132.30	111.15	104.15	100.65	97.05	94.05	90.10
11.0	.4331	2465110	100.45	3/8	4	1	7	-	-	-	-	-	-	-	-
11.5	.4528	2465115	105.70	3/8	4	1	7	11.202 -11.989	137.50	116.45	109.25	105.85	102.25	99.30	95.25
12.0	.4724	2465120	105.70	7/16	6	1	8	11.990 -12.776	137.50	116.45	109.25	105.85	102.25	99.30	95.25
12.5	.4921	2465125	105.70	7/16	6	1	8	-	-	-	-	-	-	-	-
13.0	.5118	2465130	107.95	7/16	6	1	8	12.777 -13.564	139.90	118.75	111.65	108.25	104.70	101.65	97.60
13.5	.5315	2465135	107.95	7/16	6	1	8	-	-	-	-	-	-	-	-
14.0	.5512	2465140	107.95	7/16	6	1 1/8	8	13.565 -14.376	139.90	118.75	111.65	108.25	104.70	101.65	97.60
14.5	.5709	2465145	112.20	7/16	6	1 1/8	8	14.377 -15.164	144.00	122.75	115.75	112.30	108.75	105.80	101.65
15.0	.5906	2465150	112.20	7/16	6	1 1/8	8	-	-	-	-	-	-	-	-
15.5	.6102	2465155	112.20	9/16	6	1 1/4	9	15.165 -15.951	144.00	122.75	115.75	112.30	108.75	105.80	101.65
16.0	.6299	2465160	121.25	9/16	6	1 1/4	9	15.952 -16.739	153.10	132.05	124.90	121.40	117.95	115.05	110.90
16.5	.6496	2465165	121.25	9/16	6	1 1/4	9	-	-	-	-	-	-	-	-
17.0	.6693	2465170	121.25	9/16	6	1 1/4	9	16.740 -17.551	153.10	132.05	124.90	121.40	117.95	115.05	110.90
17.5	.6890	2465175	121.25	9/16	6	1 1/4	9	-	-	-	-	-	-	-	-
18.0	.7087	2465180	125.15	9/16	6	1 1/4	9	17.552 -18.339	157.20	136.00	128.85	125.50	121.85	118.95	114.85
18.5	.7283	2465185	125.15	5/8	6	1 3/8	9 1/2	18.340 -19.126	157.20	136.00	128.85	125.50	121.85	118.95	114.85
19.0	.7480	2465190	125.15	5/8	6	1 3/8	9 1/2	-	-	-	-	-	-	-	-
19.5	.7677	2465195	133.80	5/8	6	1 3/8	9 1/2	19.127 -19.914	165.85	144.70	137.50	133.95	130.60	127.60	123.45
20.0	.7874	2465200	133.80	5/8	6	1 3/8	9 1/2	19.915 -20.726	165.85	144.70	137.50	133.95	130.60	127.60	123.45
20.5	.8071	2465205	133.80	5/8	6	1 3/8	9 1/2	-	-	-	-	-	-	-	-
21.0	.8268	2465210	138.65	5/8	6	1 3/8	9 1/2	20.727 -21.514	170.50	149.35	142.20	138.80	135.20	132.20	128.15
21.5	.8465	2465215	138.65	5/8	6	1 3/8	9 1/2	-	-	-	-	-	-	-	-
22.0	.8661	2465220	138.65	3/4	6	1 1/2	10	21.515 -22.301	170.50	149.35	142.20	138.80	135.20	132.20	128.15
22.5	.8858	2465225	152.20	3/4	6	1 1/2	10	22.302 -23.089	185.25	163.35	155.95	152.35	148.70	145.70	141.35
23.0	.9055	2465230	152.20	3/4	6	1 1/2	10	-	-	-	-	-	-	-	-
23.5	.9252	2465235	152.20	3/4	8	1 1/2	10	23.090 -23.901	185.25	163.35	155.95	152.35	148.70	145.70	141.35
24.0	.9449	2465240	157.45	3/4	8	1 1/2	10	23.902 -24.689	190.60	168.65	161.35	157.65	154.00	150.90	146.70
24.5	.9646	2465245	157.45	3/4	8	1 1/2	10	-	-	-	-	-	-	-	-
25.0	.9843	2465250	157.45	7/8	8	1 5/8	10 1/2	24.690 -25.476	190.60	168.65	161.35	157.65	154.00	150.90	146.70
25.5	1.0039	2465255	171.25	7/8	8	1 5/8	10 1/2	25.477 -27.076	204.35	182.45	175.00	171.35	167.75	164.70	160.40
26.0	1.0236	2465260	171.25	7/8	8	1 5/8	10 1/2	-	-	-	-	-	-	-	-
27.0	1.0630	2465270	171.25	7/8	8	1 5/8	10 1/2	-	-	-	-	-	-	-	-
28.0	1.1024	2465280	171.25	7/8	8	1 3/4	11	27.077 -28.651	204.35	182.45	175.00	171.35	167.75	164.70	160.40
29.0	1.1417	2465290	185.50	1	8	1 3/4	11	28.652 -30.239	218.60	196.65	189.35	185.60	182.00	179.05	174.65
30.0	1.1811	2465300	185.50	1	8	1 3/4	11	-	-	-	-	-	-	-	-
31.0	1.2205	2465310	185.50	1	8	1 7/8	11 1/2	30.240 -31.826	218.60	196.65	189.35	185.60	182.00	179.05	174.65
32.0	1.2598	2465320	204.20	1	8	1 7/8	11 1/2	31.827 -33.414	237.20	215.20	207.95	204.35	200.60	197.60	193.45
33.0	1.2992	2465330	204.20	1	8	1 7/8	11 1/2	-	-	-	-	-	-	-	-
34.0	1.3386	2465340	213.05	1	8	2	12	33.415 -35.001	246.10	224.15	216.75	213.30	209.70	206.45	202.25
35.0	1.3780	2465350	213.05	1	8	2	12	-	-	-	-	-	-	-	-
36.0	1.4173	2465360	250.05	1 1/4	8	2	12	35.002 -36.589	285.30	261.90	254.15	250.25	246.25	243.10	238.60
37.0	1.4567	2465370	257.00	1 1/4	8	2 1/8	12 1/2	36.590 -38.176	292.25	268.95	261.05	257.10	253.35	250.00	245.50
38.0	1.4961	2465380	257.00	1 1/4	8	2 1/8	12 1/2	-	-	-	-	-	-	-	-
39.0	1.5354	2465390	332.50	1 1/4	8	2 1/4	12 1/2	38.177 -39.776	367.85	344.40	336.50	332.70	328.70	325.40	321.00
40.0	1.5748	2465400	332.50	1 1/4	8	2 1/4	13	39.777 -41.351	367.85	344.40	336.50	332.70	328.70	325.40	321.00
41.0	1.6142	2465410	332.50	1 1/4	8	2 1/4	13	-	-	-	-	-	-	-	-
42.0	1.6535	2465420	366.70	1 1/4	8	2 1/4	13	41.352 -42.951	401.90	378.50	370.70	366.90	362.90	359.65	355.05
43.0	1.6929	2465430	366.70	1 1/4	10	2 3/8	13 1/2	42.952 -44.526	401.90	378.50	370.70	366.90	362.90	359.65	355.05
44.0	1.7323	2465440	366.70	1 1/4	10	2 3/8	13 1/2	-	-	-	-	-	-	-	-

Modified tool diameters are available up to 63mm - contact us for price.



EXPANSION CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT FLUTE LONG CARBIDE AND TAPER SHANK



TYPE 2467 - FINISHED FRACTIONAL SIZES

Expansion screw permits expansion of cutting diameter for regrinding after wear without reinserting carbide.

Taper shank and straight polished flutes.

Flute long carbide tips brazed to one piece alloy steel bodies.

Cutting diameter tolerance plus .0003" minus .0000".

OPTIONS:

Intermediate decimal and metric sizes (priced as indicated in extended table below).

Cutting diameter reduced for small steps or pilot.

Radius end or end chamfer other than 45°.

End cutting.

Rose grind (twice normal back taper).

Type 2465 semi-finished reamers in stock. (see pg. 47).

Closer tolerance.

For +.0002" add \$1.00 per tool.

For +.0001" add \$3.00 per tool.

USE - See page 42.

TOOL DIAMETER	GUARANTEED MINIMUM EXPANSION
5/16" - 15/32"	.006"
1/2" - 31/32"	.010"
1" - 1 1/2"	.013"
1 5/16" - 2 1/2"	.015"

TOOL DIAMETER		MORSE TAPER	NO. OF FLUTES	LENGTH		TYPE 2467 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL			FLUTE & CARBIDE	OVERALL				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
5/16	.3125	1	4	1	6	246710	\$97.90	0.2841 - 0.3150	\$143.15	\$120.45	\$112.95	\$109.25	\$105.50	\$102.35
11/32	.3438	1	4	1	6	246711	97.90	0.3151 - 0.3470	143.15	120.45	112.95	109.25	105.50	102.35
3/8	.3750	1	4	1	7	246712	91.80	0.3471 - 0.3780	134.25	112.95	105.85	102.50	98.90	96.05
13/32	.4062	1	4	1	7	246713	94.65	0.3781 - 0.4090	137.00	115.75	108.60	105.25	101.55	98.75
7/16	.4375	1	4	1	7	246714	94.65	0.4091 - 0.4410	137.00	115.75	108.60	105.25	101.55	98.75
15/32	.4688	1	4	1	7	246715	99.25	0.4411 - 0.4720	141.70	120.45	113.30	109.95	106.25	103.40
1/2	.5000	1	6	1	8	246716	99.25	0.4721 - 0.5030	141.70	120.45	113.30	109.95	106.25	103.40
17/32	.5312	1	6	1	8	246717	102.25	0.5031 - 0.5340	144.70	123.40	116.35	112.95	109.25	106.40
9/16	.5625	1	6	1 1/8	8	246718	102.25	0.5341 - 0.5660	144.70	123.40	116.35	112.95	109.25	106.40
19/32	.5938	1	6	1 1/8	8	246719	106.40	0.5661 - 0.5970	148.75	127.60	120.55	117.10	113.60	110.65
5/8	.6250	2	6	1 1/4	9	246720	106.40	0.5971 - 0.6280	148.75	127.60	120.55	117.10	113.60	110.65
21/32	.6562	2	6	1 1/4	9	246721	119.80	0.6281 - 0.6590	162.15	140.85	133.75	130.40	126.80	124.00
11/16	.6875	2	6	1 1/4	9	246722	119.80	0.6591 - 0.6910	162.15	140.85	133.75	130.40	126.80	124.00
23/32	.7188	2	6	1 1/4	9	246723	120.00	0.6911 - 0.7220	162.50	141.30	134.25	130.85	127.05	124.30
3/4	.7500	2	6	1 3/8	9 1/2	246724	120.00	0.7221 - 0.7530	162.50	141.30	134.25	130.85	127.05	124.30
25/32	.7812	2	6	1 3/8	9 1/2	246725	128.95	0.7531 - 0.7840	171.35	150.05	143.10	139.70	136.00	133.15
13/16	.8125	2	6	1 3/8	9 1/2	246726	128.95	0.7841 - 0.8160	171.35	150.05	143.10	139.70	136.00	133.15
27/32	.8438	2	6	1 3/8	9 1/2	246727	134.40	0.8161 - 0.8470	176.75	155.50	148.45	145.00	141.35	138.45
7/8	.8750	2	6	1 1/2	10	246728	139.55	0.8471 - 0.8780	183.35	161.45	154.00	150.55	146.70	143.65
29/32	.9062	2	6	1 1/2	10	246729	147.50	0.8781 - 0.9090	191.45	169.45	162.00	158.50	154.70	151.80
15/16	.9375	3	8	1 1/2	10	246730	147.50	0.9091 - 0.9410	191.45	169.45	162.00	158.50	154.70	151.80
31/32	.9688	3	8	1 1/2	10	246731	152.85	0.9411 - 0.9720	196.70	174.65	167.25	163.80	160.15	157.00
1	1.0000	3	8	1 5/8	10 1/2	246732	152.85	0.9721 - 1.0030	196.70	174.65	167.25	163.80	160.15	157.00
1 1/32	1.0312	3	8	1 5/8	10 1/2	246733	167.15	-	-	-	-	-	-	-
1 1/16	1.0625	3	8	1 5/8	10 1/2	246734	167.15	1.0031 - 1.0660	211.35	189.20	181.80	178.30	174.55	171.55
1 3/32	1.0938	3	8	1 3/4	11	246735	167.15	-	-	-	-	-	-	-
1 1/8	1.1250	3	8	1 3/4	11	246736	167.15	1.0661 - 1.1280	211.35	189.20	181.80	178.30	174.55	171.55
1 3/16	1.1875	3	8	1 3/4	11	246738	188.05	1.1281 - 1.1905	232.00	209.95	202.65	199.15	195.40	192.40
1 1/4	1.2500	4	8	1 7/8	11 1/2	246740	190.65	1.1906 - 1.2530	234.55	212.60	205.25	201.75	197.85	194.95
1 5/16	1.3125	4	8	1 7/8	11 1/2	246742	208.40	1.2531 - 1.3155	252.30	230.30	222.90	219.45	215.75	212.65
1 3/8	1.3750	4	8	2	12	246744	228.30	1.3156 - 1.3780	272.10	250.15	242.85	239.30	235.55	232.50
1 7/16	1.4375	4	8	2	12	246746	256.25	1.3781 - 1.4405	303.10	279.60	271.80	268.00	263.95	260.85
1 1/2	1.5000	4	8	2 1/8	12 1/2	246748	265.30	1.4406 - 1.5030	312.25	288.70	280.75	277.15	273.05	269.85
1 9/16	1.5625	4	8	2 1/8	12 1/2	246750	364.55	1.5031 - 1.5660	411.50	387.95	380.15	376.40	372.30	369.10
1 5/8	1.6250	4	8	2 1/4	13	246752	364.55	1.5661 - 1.6280	411.50	387.95	380.15	376.40	372.30	369.10
1 11/16	1.6875	4	8	2 1/4	13	246754	403.75	1.6281 - 1.6910	450.70	427.20	419.30	415.50	411.55	408.35
1 3/4	1.7500	4	10	2 3/8	13 1/2	246756	403.75	1.6911 - 1.7530	450.70	427.20	419.30	415.50	411.55	408.35
1 13/16	1.8125	4	10	2 3/8	13 1/2	246758	478.00	1.7531 - 1.8160	524.95	501.55	493.70	489.90	485.80	482.70
1 7/8	1.8750	4	10	2 1/2	14	246760	478.00	1.8161 - 1.8780	524.95	501.55	493.70	489.90	485.80	482.70
1 15/16	1.9375	4	10	2 1/2	14	246762	522.50	1.8781 - 1.9410	569.25	545.75	537.85	534.20	530.10	527.10
2	2.0000	4	12	2 1/2	14	246764	522.50	1.9411 - 2.0030	569.25	545.75	537.85	534.20	530.10	527.10
2 1/8	2.1250	5	12	2 3/4	14 1/2	246768	782.15	2.0031 - 2.1280	829.00	805.60	797.65	793.95	790.00	786.70
2 1/4	2.2500	5	12	2 3/4	14 1/2	246772	839.90	2.1281 - 2.2530	886.90	863.35	855.60	851.70	847.75	844.65
2 3/8	2.3750	5	12	3	15	246776	869.15	2.2531 - 2.3780	915.95	892.65	884.65	881.05	876.95	873.80
2 1/2	2.5000	5	12	3	15	246780	869.15	2.3781 - 2.5030	915.95	892.65	884.65	881.05	876.95	873.80

*Quantities of 15 or more: price of fractional size in same size range.



EXPANSION CHUCKING REAMERS

CARBIDE TIPPED - STRAIGHT FLUTE LONG CARBIDE & TAPER SHANK

TYPE 2467 - METRIC



NOTE: Tool diameter in millimeters (mm); all other dimensions in inches.

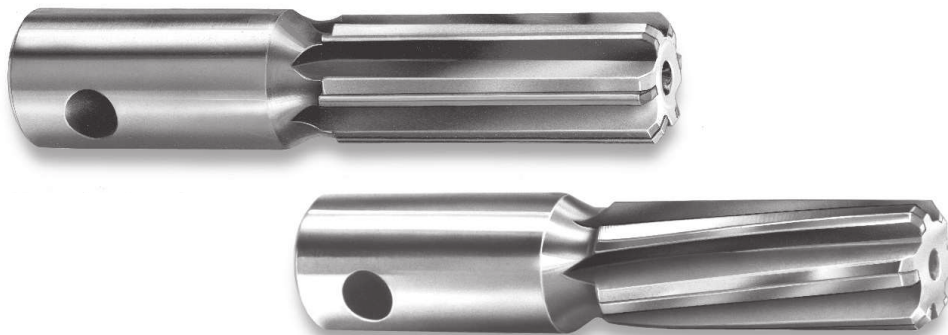
TOOL DIAMETER		TYPE 2467 METRIC EDP NO.	METRIC PRICE	DIMENSIONS				SPECIAL METRIC SIZE RANGE	PRICE EACH - FINISHED TO METRIC SIZE						
mm	INCH			MORSE TAPER	NO. OF FLUTES	LENGTH			1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14	OVER 14
						FLUTE & CARBIDE	OVERALL								
7.5	.2953	2467075	\$112.95	1	4	1	6	7.215 -8.001	\$146.95	\$124.35	\$116.85	\$113.10	\$109.25	\$106.15	\$101.75
8.0	.3150	2467080	112.95	1	4	1	6	-	-	-	-	-	-	-	-
8.5	.3346	2467085	112.95	1	4	1	6	8.002 -8.814	146.95	124.35	116.85	113.10	109.25	106.15	101.75
9.0	.3543	2467090	105.85	1	4	1	7	8.815 -9.601	137.70	116.55	109.50	106.00	102.50	99.55	95.35
9.5	.3740	2467095	105.85	1	4	1	7	-	-	-	-	-	-	-	-
10.0	.3937	2467100	108.60	1	4	1	7	9.602 -10.389	140.50	119.45	112.30	108.80	105.25	102.25	98.15
10.5	.4134	2467105	108.60	1	4	1	7	10.390 -11.201	140.50	119.45	112.30	108.80	105.25	102.25	98.15
11.0	.4331	2467110	108.60	1	4	1	7	-	-	-	-	-	-	-	-
11.5	.4528	2467115	113.30	1	4	1	7	11.202 -11.989	145.20	124.05	117.00	113.60	109.95	107.05	102.90
12.0	.4724	2467120	113.30	1	6	1	8	11.990 -12.776	145.20	124.05	117.00	113.60	109.95	107.05	102.90
12.5	.4921	2467125	113.30	1	6	1	8	-	-	-	-	-	-	-	-
13.0	.5118	2467130	116.35	1	6	1	8	12.777 -13.564	148.30	127.00	119.90	116.50	112.95	110.10	105.90
13.5	.5315	2467135	116.35	1	6	1	8	-	-	-	-	-	-	-	-
14.0	.5512	2467140	116.35	1	6	1 1/8	8	13.565 -14.376	148.30	127.00	119.90	116.50	112.95	110.10	105.90
14.5	.5709	2467145	120.55	1	6	1 1/8	8	14.377 -15.164	152.35	131.15	124.15	120.70	117.10	114.10	110.15
15.0	.5906	2467150	120.55	1	6	1 1/8	8	-	-	-	-	-	-	-	-
15.5	.6102	2467155	120.55	2	6	1 1/4	9	15.165 -15.951	152.35	131.15	124.15	120.70	117.10	114.10	110.15
16.0	.6299	2467160	133.75	2	6	1 1/4	9	15.952 -16.739	165.75	144.55	137.40	133.85	130.40	127.55	123.40
16.5	.6496	2467165	133.75	2	6	1 1/4	9	-	-	-	-	-	-	-	-
17.0	.6693	2467170	133.75	2	6	1 1/4	9	16.740 -17.551	165.75	144.55	137.40	133.85	130.40	127.55	123.40
17.5	.6890	2467175	133.75	2	6	1 1/4	9	-	-	-	-	-	-	-	-
18.0	.7087	2467180	134.25	2	6	1 1/4	9	17.552 -18.339	166.10	144.90	137.90	134.40	130.85	127.85	123.85
18.5	.7283	2467185	134.25	2	6	1 3/8	9 1/2	18.340 -19.126	166.10	144.90	137.90	134.40	130.85	127.85	123.85
19.0	.7480	2467190	134.25	2	6	1 3/8	9 1/2	-	-	-	-	-	-	-	-
19.5	.7677	2467195	143.10	2	6	1 3/8	9 1/2	19.127 -19.914	174.95	153.85	146.70	143.25	139.70	136.70	132.60
20.0	.7874	2467200	143.10	2	6	1 3/8	9 1/2	19.915 -20.726	174.95	153.85	146.70	143.25	139.70	136.70	132.60
20.5	.8071	2467205	143.10	2	6	1 3/8	9 1/2	-	-	-	-	-	-	-	-
21.0	.8268	2467210	148.45	2	6	1 3/8	9 1/2	20.727 -21.514	180.25	159.15	152.10	148.55	145.00	141.95	138.10
21.5	.8465	2467215	148.45	2	6	1 3/8	9 1/2	-	-	-	-	-	-	-	-
22.0	.8661	2467220	148.45	2	6	1 1/2	10	21.515 -22.301	180.25	159.15	152.10	148.55	145.00	141.95	138.10
22.5	.8858	2467225	162.00	2	6	1 1/2	10	22.302 -23.089	195.15	173.10	165.85	162.15	158.50	155.50	151.25
23.0	.9055	2467230	162.00	2	6	1 1/2	10	-	-	-	-	-	-	-	-
23.5	.9252	2467235	162.00	3	8	1 1/2	10	23.090 -23.901	195.15	173.10	165.85	162.15	158.50	155.50	151.25
24.0	.9449	2467240	167.25	3	8	1 1/2	10	23.902 -24.689	200.45	178.60	171.20	167.65	163.80	160.80	156.65
24.5	.9646	2467245	167.25	3	8	1 1/2	10	-	-	-	-	-	-	-	-
25.0	.9843	2467250	167.25	3	8	1 5/8	10 1/2	24.690 -25.476	200.45	178.60	171.20	167.65	163.80	160.80	156.65
25.5	1.0039	2467255	181.80	3	8	1 5/8	10 1/2	25.477 -27.076	214.95	192.95	185.55	182.00	178.30	175.35	171.05
26.0	1.0236	2467260	181.80	3	8	1 5/8	10 1/2	-	-	-	-	-	-	-	-
27.0	1.0630	2467270	181.80	3	8	1 5/8	10 1/2	-	-	-	-	-	-	-	-
28.0	1.1024	2467280	181.80	3	8	1 3/4	11	27.077 -28.651	214.95	192.95	185.55	182.00	178.30	175.35	171.05
29.0	1.1417	2467290	202.65	3	8	1 3/4	11	28.652 -30.239	235.70	213.80	206.40	202.80	199.15	196.05	191.75
30.0	1.1811	2467300	202.65	3	8	1 3/4	11	-	-	-	-	-	-	-	-
31.0	1.2205	2467310	205.25	4	8	1 7/8	11 1/2	30.240 -31.826	238.35	216.35	209.00	205.35	201.75	198.65	194.35
32.0	1.2598	2467320	222.90	4	8	1 7/8	11 1/2	31.827 -33.414	255.95	234.00	226.75	223.10	219.45	216.35	212.15
33.0	1.2992	2467330	222.90	4	8	1 7/8	11 1/2	-	-	-	-	-	-	-	-
34.0	1.3386	2467340	242.85	4	8	2	12	33.415 -35.001	275.85	254.05	246.60	243.05	239.30	236.25	232.00
35.0	1.3780	2467350	242.85	4	8	2	12	-	-	-	-	-	-	-	-
36.0	1.4173	2467360	271.80	4	8	2	12	35.002 -36.589	307.00	283.60	275.70	271.95	268.00	264.65	260.30
37.0	1.4567	2467370	280.75	4	8	2 1/8	12 1/2	36.590 -38.176	316.20	292.70	284.95	281.10	277.15	273.90	269.30
38.0	1.4961	2467380	280.75	4	8	2 1/8	12 1/2	-	-	-	-	-	-	-	-
39.0	1.5354	2467390	380.15	4	8	2 1/8	12 1/2	38.177 -39.776	415.35	391.95	384.25	380.25	376.40	373.10	368.65
40.0	1.5748	2467400	380.15	4	8	2 1/4	13	39.777 -41.351	415.35	391.95	384.25	380.25	376.40	373.10	368.65
41.0	1.6142	2467410	380.15	4	8	2 1/4	13	-	-	-	-	-	-	-	-
42.0	1.6535	2467420	419.30	4	8	2 1/4	13	41.352 -42.951	454.60	431.20	423.40	419.60	415.50	412.40	407.70
43.0	1.6929	2467430	419.30	4	10	2 3/8	13 1/2	42.952 -44.526	454.60	431.20	423.40	419.60	415.50	412.40	407.70
44.0	1.7323	2467440	419.30	4	10	2 3/8	13 1/2	-	-	-	-	-	-	-	-

Modified tool diameters are available up to 63mm - contact us for price.



CNC STUB REAMERS

CARBIDE TIPPED - STRAIGHT FLUTES AND LEFT SPIRAL FLUTES



TYPE 2430 - STRAIGHT FLUTES
TYPE 2440 - LEFT SPIRAL FLUTES
BOTH TYPES:

Polished flutes for high volume chip flow.
 Flute long carbide on .2841" tool diameter and larger.
 Straight shanks fit into standard holders.
 Pin cross holes permit use in pin drive floating holders.
 Carbide tips brazed to one piece hardened alloy steel bodies.
 Cutting diameter tolerance plus .0003" minus .0000".

OPTIONS:

Decimal & metric sizes (priced as indicated in extended table below).
 Cutting diameter reduced for small steps or pilot.
 Radius end or end chamfer other than 45°.
 End cutting.
 Semi-finished Type 2430 & Type 2440 in stock (pg. 47).
 Closer tolerance.
 For +.0002" add \$1.00 per tool.
 For +.0001" add \$3.00 per tool.

TOOL DIAMETER		SHANK DIAM.	NO. OF FLUTES	LENGTH			PIN HOLE DIAM.	STRAIGHT TYPE 2430 EDP NO.	LEFT SPIRAL TYPE 2440 EDP NO.	BOTH TYPES PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRAC.	DECIMAL			FLUTE	CARBIDE	OVER-ALL						1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
3/16	.1875	1/4	4	1	1/2	2 1/4	3/32	243006	244006	\$61.50	0.1770 - 0.2040	\$106.55	\$84.00	\$76.40	\$72.85	\$68.95	\$65.85
7/32	.2188	1/4	4	1	1/2	2 1/4	3/32	243007	244007	61.50	0.2041 - 0.2210	106.55	84.00	76.40	72.85	68.95	65.85
15/64	.2344	1/4	4	1	1/2	2 1/4	3/32	24302344	24402344	61.50	0.2211 - 0.2380	106.55	84.00	76.40	72.85	68.95	65.85
1/4	.2500	1/4	4	1	1/2	2 1/4	3/32	243008	244008	61.50	0.2381 - 0.2530	106.55	84.00	76.40	72.85	68.95	65.85
9/32	.2812	3/8	4	1	1/2	2 1/4	1/8	243009	244009	61.50	0.2531 - 0.2840	106.55	84.00	76.40	72.85	68.95	65.85
5/16	.3125	3/8	4	1	1	2 1/4	1/8	243010	244010	71.50	0.2841 - 0.3150	116.55	93.90	86.45	82.85	78.90	75.90
11/32	.3438	3/8	4	1 1/4	1 1/4	2 1/2	1/8	243011	244011	72.00	0.3151 - 0.3470	117.20	94.65	87.05	83.55	79.55	76.55
3/8	.3750	3/8	4	1 1/4	1 1/4	2 1/2	1/8	243012	244012	78.20	0.3471 - 0.3780	123.35	100.75	93.20	89.45	85.65	82.55
13/32	.4062	1/2	4	1 1/4	1 1/4	2 1/2	3/16	243013	244013	79.30	0.3781 - 0.4090	124.50	101.75	94.30	90.65	86.70	83.75
7/16	.4375	1/2	4	1 1/4	1 1/4	2 1/2	3/16	243014	244014	93.85	0.4091 - 0.4410	139.05	116.45	108.80	105.25	101.40	98.40
15/32	.4688	1/2	4	1 1/4	1 1/4	2 1/2	3/16	243015	244015	93.85	0.4411 - 0.4720	139.05	116.45	108.80	105.25	101.40	98.40
1/2	.5000	1/2	4	1 1/4	1 1/4	2 1/2	3/16	243016	244016	102.75	0.4721 - 0.5030	149.20	125.90	118.15	114.50	110.40	107.35
17/32	.5312	5/8	6	1 1/2	1 1/2	3	1/4	243017	244017	102.75	0.5031 - 0.5340	149.20	125.90	118.15	114.50	110.40	107.35
9/16	.5625	5/8	6	1 1/2	1 1/2	3	1/4	243018	244018	108.35	0.5341 - 0.5660	154.55	131.40	123.50	119.90	115.90	112.70
19/32	.5938	5/8	6	1 1/2	1 1/2	3	1/4	243019	244019	108.35	0.5661 - 0.5970	154.55	131.40	123.50	119.90	115.90	112.70
5/8	.6250	5/8	6	1 1/2	1 1/2	3	1/4	243020	244020	111.15	0.5971 - 0.6280	157.55	134.35	126.55	122.75	118.80	115.75
21/32	.6562	5/8	6	1 1/2	1 1/2	3	1/4	243021	244021	111.15	0.6281 - 0.6590	157.55	134.35	126.55	122.75	118.80	115.75
11/16	.6875	5/8	6	1 1/2	1 1/2	3	1/4	243022	244022	116.35	0.6591 - 0.6910	162.65	139.50	131.75	127.95	124.00	120.90
23/32	.7188	3/4	6	1 1/2	1 1/2	3	5/16	243023	244023	116.35	0.6911 - 0.7220	162.65	139.50	131.75	127.95	124.00	120.90
3/4	.7500	3/4	6	1 1/2	1 1/2	3	5/16	243024	244024	119.40	0.7221 - 0.7530	165.55	142.45	134.65	130.90	126.95	123.90
25/32	.7812	3/4	6	1 1/2	1 1/2	3	5/16	243025	244025	119.40	0.7531 - 0.7840	165.55	142.45	134.65	130.90	126.95	123.90
13/16	.8125	3/4	6	1 1/2	1 1/2	3	5/16	243026	244026	129.55	0.7841 - 0.8160	175.90	152.80	144.90	141.25	137.25	134.25
27/32	.8438	3/4	6	1 1/2	1 1/2	3	5/16	243027	244027	129.55	0.8161 - 0.8470	175.90	152.80	144.90	141.25	137.25	134.25
7/8	.8750	3/4	6	1 1/2	1 1/2	3	5/16	243028	244028	141.65	0.8471 - 0.8780	189.75	165.50	157.45	153.65	149.50	146.30
29/32	.9062	3/4	6	1 1/2	1 1/2	3	5/16	243029	244029	141.65	0.8781 - 0.9090	189.75	165.50	157.45	153.65	149.50	146.30
15/16	.9375	3/4	6	1 1/2	1 1/2	3	5/16	243030	244030	155.95	0.9091 - 0.9410	204.00	180.00	171.90	168.05	164.00	160.70
31/32	.9688	3/4	8	1 1/2	1 1/2	3	5/16	243031	244031	155.95	0.9411 - 0.9720	204.00	180.00	171.90	168.05	164.00	160.70
1	1.0000	3/4	8	1 1/2	1 1/2	3	5/16	243032	244032	163.55	0.9721 - 1.0030	211.70	187.70	179.55	175.75	171.55	168.35
1 1/16	1.0625	3/4	8	1 1/2	1 1/2	3	5/16	243034	244034	163.55	1.0031 - 1.0660	211.70	187.70	179.55	175.75	171.55	168.35
1 1/8	1.1250	3/4	8	1 1/2	1 1/2	3	5/16	243036	244036	191.50	1.0661 - 1.1280	239.65	215.40	207.40	203.65	199.45	196.15
1 3/16	1.1875	3/4	8	1 1/2	1 1/2	3	5/16	243038	244038	199.60	1.1281 - 1.1905	247.85	223.70	215.55	211.70	207.65	204.35
1 1/4	1.2500	3/4	8	1 1/2	1 1/2	3	5/16	243040	244040	233.85	1.1906 - 1.2530	282.05	257.95	249.95	246.00	241.95	238.65
1 5/16	1.3125	3/4	8	1 1/2	1 1/2	3	5/16	243042	244042	233.85	1.2531 - 1.3155	282.05	257.95	249.95	246.00	241.95	238.65
1 3/8	1.3750	3/4	8	1 1/2	1 1/2	3	5/16	243044	244044	237.25	1.3156 - 1.3780	285.35	261.20	253.35	249.35	245.40	242.10
1 7/16	1.4375	3/4	8	1 1/2	1 1/2	3	5/16	243046	244046	276.55	1.3781 - 1.4405	324.80	300.60	292.60	288.70	284.60	281.40
1 1/2	1.5000	3/4	8	1 1/2	1 1/2	3	5/16	243048	244048	332.10	1.4406 - 1.5030	380.25	356.25	348.15	344.30	340.05	336.80

*Quantities of 15 or more: price of fractional size in same size range.



SEMI-FINISHED CHUCKING REAMERS & COUNTERBORE PILOTS

Before semi-finished reamers can be used, the cutting diameter must be finish ground and relieved. The reamer end must be faced and chamfered.

SEMI-FINISHED TOOL DIAMETER RANGE	TYPE 2400 - PAGE 38		TYPE 2402 - PAGE 44		TYPE 2410 - PAGE 58		TYPE 2430 PAGE 31	TYPE 2440 PAGE 31	TYPE 2430 OR 2440 PRICE	TYPE 2450 - PAGE 46		TYPE 2465 - PAGE 54	
	EDP NO.	PRICE	EDP NO.	PRICE	EDP NO.	PRICE	EDP NO.	EDP NO.		EDP NO.	PRICE	EDP NO.	PRICE
0.1770 - 0.2040	240006SF	\$40.10	-	-	241006SF	\$56.45	243006SF	244006SF	\$52.30	245006SF	\$47.95	-	-
0.2041 - 0.2210	240007SF	40.10	-	-	241007SF	56.45	243007SF	244007SF	52.30	245007SF	47.95	-	-
0.2211 - 0.2380	24002344SF	42.30	-	-	24102344SF	56.45	24302344SF	24402344SF	52.30	24502344SF	47.95	-	-
0.2381 - 0.2530	240008SF	40.10	240208SF	\$46.25	241008SF	56.45	243008SF	244008SF	52.30	245008SF	47.95	-	-
0.2531 - 0.2840	240009SF	40.85	240209SF	47.00	241009SF	56.60	243009SF	244009SF	52.30	245009SF	49.05	-	-
0.2841 - 0.3150	240010SF	40.85	240210SF	47.00	241010SF	56.60	243010SF	244010SF	60.65	245010SF	49.05	246510SF	\$74.00
0.3151 - 0.3470	240011SF	42.25	240211SF	48.65	241011SF	62.20	243011SF	244011SF	61.30	245011SF	50.75	246511SF	74.00
0.3471 - 0.3780	240012SF	38.75	240212SF	44.80	241012SF	62.80	243012SF	244012SF	66.40	245012SF	50.75	246512SF	69.25
0.3781 - 0.4090	240013SF	44.35	240213SF	51.05	241013SF	65.65	243013SF	244013SF	67.30	245013SF	53.20	246513SF	73.40
0.4091 - 0.4410	240014SF	47.25	240214SF	54.40	241014SF	68.20	243014SF	244014SF	79.85	245014SF	57.65	246514SF	73.40
0.4411 - 0.4720	240015SF	48.15	240215SF	55.95	241015SF	72.50	243015SF	244015SF	79.85	245015SF	62.20	246515SF	77.85
0.4721 - 0.5030	240016SF	57.30	240216SF	65.80	241016SF	75.25	243016SF	244016SF	87.25	245016SF	66.75	246516SF	77.85
0.5031 - 0.5340	240017SF	62.20	240217SF	71.10	241017SF	77.60	243017SF	244017SF	87.25	245017SF	68.45	246517SF	79.85
0.5341 - 0.5660	240018SF	62.20	240218SF	71.10	241018SF	77.60	243018SF	244018SF	92.10	245018SF	68.45	246518SF	79.85
0.5661 - 0.5970	240019SF	64.75	240219SF	74.40	241019SF	79.85	243019SF	244019SF	92.10	245019SF	71.30	246519SF	83.35
0.5971 - 0.6280	240020SF	64.75	240220SF	74.40	241020SF	79.85	243020SF	244020SF	94.55	245020SF	71.30	246520SF	83.35
0.6281 - 0.6590	240021SF	65.85	240221SF	75.85	241021SF	82.05	243021SF	244021SF	94.55	245021SF	72.50	246521SF	91.15
0.6591 - 0.6910	240022SF	65.85	240222SF	75.85	241022SF	87.45	243022SF	244022SF	98.90	245022SF	72.50	246522SF	91.15
0.6911 - 0.7220	240023SF	68.95	240223SF	79.30	241023SF	88.65	243023SF	244023SF	98.90	245023SF	75.85	246523SF	94.65
0.7221 - 0.7530	240024SF	68.95	240224SF	79.30	241024SF	90.05	243024SF	244024SF	101.40	245024SF	75.85	246524SF	94.65
0.7531 - 0.7840	240025SF	71.40	240225SF	81.65	241025SF	92.30	243025SF	244025SF	101.40	245025SF	78.35	246525SF	102.05
0.7841 - 0.8160	240026SF	71.40	240226SF	81.65	241026SF	92.30	243026SF	244026SF	110.15	245026SF	78.35	246526SF	102.05
0.8161 - 0.8470	240027SF	74.20	240227SF	85.25	241027SF	97.35	243027SF	244027SF	110.15	245027SF	81.50	246527SF	105.90
0.8471 - 0.8780	240028SF	76.90	240228SF	88.50	241028SF	101.05	243028SF	244028SF	120.40	245028SF	84.70	246528SF	109.95
0.8781 - 0.9090	240029SF	89.85	240229SF	103.75	241029SF	117.75	243029SF	244029SF	120.40	245029SF	98.55	246529SF	117.00
0.9091 - 0.9410	240030SF	89.85	240230SF	103.75	241030SF	117.75	243030SF	244030SF	132.50	245030SF	98.55	246530SF	117.00
0.9411 - 0.9720	240031SF	94.00	240231SF	107.95	241031SF	123.40	243031SF	244031SF	132.50	245031SF	103.30	246531SF	121.50
0.9721 - 1.0030	240032SF	94.00	240232SF	107.95	241032SF	123.40	243032SF	244032SF	139.10	245032SF	103.30	246532SF	121.50

TYPE 2500 - CARBON STEEL PILOTS

The shank diameter ordered must be the same as the pilot shank hole diameter in the counterbore to be used. The pilot diameter is always larger than the shank diameter and is determined by the part to be machined.

OPTIONS: Intermediate decimal or metric pilot diameters. Shank diameter tolerance plus .0000" minus .0005".

Pilot diameter tolerance:

1/8" to 1/4" minus .001" minus .002"

3/32" to 7/8" minus .003" minus .004"

1 1/16" to 1 1/8" minus .005" minus .006"



PILOT HEAD DIAMETER		SHANK DIAMETER									ALL TYPES PRICE
FRAC.	DECIMAL	3/32	5/32	3/16	1/4	5/16	3/8	7/16	1/2		
		EDP NO.	EDP NO.	EDP NO.	EDP NO.	EDP NO.	EDP NO.	EDP NO.	EDP NO.		
1/8	.1250	250104	-	-	-	-	-	-	-	\$30.40	
5/32	.1562	250105	-	-	-	-	-	-	-	24.70	
3/16	.1875	250106	250306	-	-	-	-	-	-	25.20	
7/32	.2188	250107	250307	250407	-	-	-	-	-	28.50	
1/4	.2500	250108	250308	250408	-	-	-	-	-	28.50	
9/32	.2812	250109	250309	250409	250509	-	-	-	-	30.40	
5/16	.3125	250110	250310	250410	250510	-	-	-	-	30.40	
3/8	.3750	-	250312	250412	250512	250612	-	-	-	33.50	
7/16	.4375	-	250314	250414	250514	250614	250714	-	-	34.35	
1/2	.5000	-	-	250416	250516	250616	250716	250816	-	39.20	
9/16	.5625	-	-	250418	250518	250618	250718	250818	250918	51.35	
5/8	.6250	-	-	250420	250520	250620	250720	250820	250920	56.50	
11/16	.6875	-	-	250422	250522	250622	250722	250822	250922	57.80	
3/4	.7500	-	-	250424	250524	250624	250724	250824	250924	65.50	
13/16	.8125	-	-	250426	250526	250626	250726	250826	250926	73.55	
7/8	.8750	-	-	250428	250528	250628	250728	250828	250928	81.40	
15/16	.9375	-	-	250430	250530	250630	250730	250830	250930	85.90	
1	1.0000	-	-	250432	250532	250632	250732	250832	250932	88.85	
1 1/16	1.0625	-	-	-	-	250634	250734	250834	250934	92.10	
1 1/8	1.1250	-	-	-	-	250636	250736	250836	250936	111.00	



CHUCKING REAMERS

SOLID CARBIDE - STRAIGHT FLUTES & STRAIGHT SHANK - SHORT SERIES

TYPE 2804 - .0005 INCREMENTS

STOCKED DECIMAL TOOL DIAMETERS (.0280 - .1765)

NOTE: Dimension details (.0591 and larger) on page 52.



TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE	TOOL DIAM.	EDP NO.	PRICE
.0280	28040280	\$42.55	.0580	28040580	\$43.75	.0880	28040880	\$44.10	.1180	28041180	\$49.85	.1480	28041480	\$54.85
.0285	28040285	44.95	.0585	28040585	43.75	.0885	28040885	44.10	.1185	28041185	50.00	.1485	28041485	54.85
.0290	28040290	44.95	.0590	28040590	38.20	.0890	28040890	42.70	.1190	28041190	50.00	.1490	28041490	54.85
.0295	28040295	42.55	.0595	28040595	40.25	.0895	28040895	45.20	.1195	28041195	50.00	.1495	28041495	52.10
.0300	28040300	44.95	.0600	28040600	43.55	.0900	28040900	45.20	.1200	28041200	47.50	.1500	28041500	54.85
.0305	28040305	44.95	.0605	28040605	43.55	.0905	28040905	45.20	.1205	28041205	50.00	.1505	28041505	54.85
.0310	28040310	42.55	.0610	28040610	41.25	.0910	28040910	45.40	.1210	28041210	50.00	.1510	28041510	54.85
.0315	2804008	42.55	.0615	28040615	43.55	.0915	28040915	45.40	.1215	28041215	50.00	.1515	28041515	54.85
.0320	28040320	42.55	.0620	28040620	43.55	.0920	28040920	45.40	.1220	2804031	47.50	.1520	28041520	52.10
.0325	28040325	44.95	.0625	280404	37.90	.0925	28040925	42.85	.1225	28041225	50.00	.1525	28041525	57.20
.0330	28040330	42.55	.0630	2804016	41.25	.0930	28040930	45.40	.1230	28041230	50.00	.1530	28041530	57.20
.0335	28040335	42.55	.0635	28040635	41.25	.0935	28040935	42.85	.1235	28041235	50.00	.1535	2804039	54.35
.0340	28040340	43.40	.0640	28040640	43.55	.0940	28040940	45.40	.1240	28041240	50.00	.1540	28041540	54.35
.0345	28040345	43.40	.0645	28040645	43.55	.0945	2804024	42.85	.1245	28041245	50.00	.1545	28041545	57.20
.0350	28040350	41.35	.0650	28040650	43.75	.0950	28040950	45.90	.1250	280408	43.75	.1550	28041550	57.20
.0355	28040355	43.40	.0655	28040655	43.75	.0955	28040955	45.90	.1255	28041255	50.00	.1555	28041555	54.35
.0360	28040360	41.35	.0660	28040660	43.75	.0960	28040960	43.75	.1260	2804032	47.50	.1560	28041560	57.20
.0365	28040365	43.40	.0665	28040665	43.75	.0965	28040965	43.75	.1265	28041265	50.10	.1565	28041565	59.20
.0370	28040370	41.35	.0670	28040670	41.70	.0970	28040970	45.90	.1270	28041270	50.10	.1570	28041570	56.20
.0375	28040375	43.40	.0675	28040675	43.75	.0975	28040975	45.90	.1275	28041275	50.10	.1575	2804040	51.35
.0380	28040380	41.35	.0680	28040680	43.75	.0980	28040980	43.75	.1280	28041280	47.55	.1580	28041580	60.50
.0385	28040385	43.40	.0685	28040685	43.75	.0985	28040985	46.25	.1285	28041285	47.55	.1585	28041585	60.50
.0390	28040390	41.35	.0690	28040690	43.75	.0990	28040990	46.25	.1290	28041290	50.10	.1590	28041590	57.65
.0395	28040395	43.40	.0695	28040695	43.75	.0995	28040995	44.10	.1295	28041295	50.10	.1595	28041595	61.50
.0400	28040400	41.35	.0700	28040700	41.70	.1000	28041000	46.25	.1300	28041300	50.10	.1600	28041600	61.50
.0405	28040405	43.40	.0705	28040705	43.75	.1005	28041005	46.25	.1305	28041305	50.10	.1605	28041605	61.50
.0410	28040410	41.35	.0710	28040710	43.75	.1010	28041010	46.25	.1310	28041310	50.10	.1610	28041610	58.35
.0415	28040415	43.40	.0715	28040715	43.75	.1015	28041015	44.10	.1315	28041315	50.10	.1615	28041615	61.50
.0420	28040420	41.35	.0720	28040720	43.75	.1020	28041020	46.70	.1320	28041320	50.10	.1620	28041620	61.50
.0425	28040425	43.40	.0725	28040725	43.75	.1025	28041025	46.90	.1325	28041325	50.10	.1625	28041625	61.50
.0430	28040430	41.35	.0730	28040730	41.70	.1030	28041030	46.90	.1330	28041330	50.10	.1630	28041630	61.50
.0435	28040435	43.75	.0735	28040735	43.75	.1035	28041035	46.90	.1335	28041335	50.10	.1635	28041635	61.65
.0440	28040440	43.75	.0740	28040740	43.75	.1040	28041040	46.90	.1340	28041340	50.10	.1640	28041640	61.50
.0445	28040445	43.75	.0745	28040745	43.75	.1045	28041045	46.90	.1345	28041345	50.10	.1645	28041645	61.50
.0450	28040450	43.75	.0750	28040750	43.75	.1050	28041050	46.90	.1350	28041350	50.10	.1650	28041650	61.50
.0455	28040455	43.75	.0755	28040755	43.75	.1055	28041055	46.90	.1355	28041355	50.10	.1655	28041655	61.50
.0460	28040460	43.75	.0760	28040760	41.70	.1060	28041060	46.90	.1360	28041360	47.55	.1660	28041660	58.70
.0465	28040465	41.55	.0765	28040765	43.75	.1065	28041065	44.55	.1365	28041365	50.10	.1665	28041665	62.20
.0470	28040470	43.75	.0770	28040770	43.75	.1070	28041070	47.55	.1370	28041370	50.10	.1670	28041670	62.20
.0475	28040475	43.75	.0775	28040775	43.75	.1075	28041075	47.55	.1375	28041375	50.10	.1675	28041675	62.20
.0480	28040480	43.75	.0780	28040780	43.75	.1080	28041080	47.55	.1380	28041380	51.05	.1680	28041680	62.20
.0485	28040485	43.75	.0785	28040785	41.75	.1085	28041085	48.20	.1385	28041385	51.05	.1685	28041685	62.20
.0490	28040490	43.75	.0790	28040790	43.95	.1090	28041090	48.20	.1390	28041390	51.05	.1690	28041690	62.20
.0495	28040495	43.75	.0795	28040795	43.95	.1095	28041095	48.20	.1395	28041395	51.05	.1695	28041695	59.25
.0500	28040500	43.75	.0800	28040800	43.95	.1100	28041100	45.90	.1400	28041400	51.05	.1700	28041700	63.55
.0505	28040505	43.75	.0805	28040805	43.95	.1105	28041105	48.90	.1405	28041405	48.20	.1705	28041705	63.55
.0510	28040510	43.75	.0810	28040810	41.75	.1110	28041110	46.70	.1410	28041410	53.00	.1710	28041710	63.55
.0515	28040515	43.75	.0815	28040815	44.10	.1115	28041115	49.85	.1415	28041415	53.00	.1715	28041715	63.55
.0520	28040520	41.55	.0820	28040820	42.05	.1120	28041120	49.85	.1420	28041420	53.00	.1720	28041720	63.55
.0525	28040525	43.75	.0825	28040825	44.10	.1125	28041125	49.85	.1425	28041425	53.00	.1725	28041725	63.55
.0530	28040530	43.75	.0830	28040830	44.10	.1130	28041130	47.25	.1430	28041430	53.00	.1730	28041730	60.50
.0535	28040535	43.75	.0835	28040835	44.10	.1135	28041135	49.85	.1435	28041435	53.00	.1735	28041735	64.50
.0540	28040540	43.75	.0840	28040840	44.10	.1140	28041140	49.85	.1440	28041440	50.35	.1740	28041740	64.50
.0545	28040545	43.75	.0845	28040845	44.10	.1145	28041145	49.85	.1445	28041445	53.20	.1745	28041745	64.50
.0550	28040550	41.55	.0850	28040850	44.10	.1150	28041150	49.85	.1450	28041450	53.25	.1750	28041750	64.50
.0555	28040555	43.75	.0855	28040855	44.10	.1155	28041155	49.85	.1455	28041455	53.25	.1755	28041755	65.05
.0560	28040560	43.75	.0860	28040860	42.05	.1160	28041160	47.25	.1460	28041460	54.70	.1760	28041760	65.05
.0565	28040565	43.75	.0865	28040865	44.10	.1165	28041165	49.85	.1465	28041465	54.70	.1765	28041765	65.05
.0570	28040570	43.75	.0870	28040870	44.10	.1170	28041170	49.85	.1470	28041470	51.90	-	-	-
.0575	28040575	43.75	.0875	28040875	44.10	.1175	28041175	49.85	.1475	28041475	54.70	-	-	-



CHUCKING REAMERS

SOLID CARBIDE - STRAIGHT FLUTES & STRAIGHT SHANK - SHORT SERIES

TYPE 2804 - FRACTIONAL, WIRE/LETTER & METRIC



NOTE: Dimension details (.0591 and larger) on page 52.

TOOL DIAMETER				TYPE 2804 EDP NO.	PRICE
FRACTION	WIRE	METRIC (mm)	DECIMAL		
* 1/32		.0312		280402	\$39.25
		*1.0 .0394		2804010	37.55
		*1.1 .0433		2804011	41.35
* 3/64		.0469		280403	41.55
		*1.2 .0472		2804012	41.55
		*1.3 .0512		2804013	41.55
	*1.4 .0551		2804014	41.55	
	1.5 .0591		2804015	36.80	
1/16		.0625		280404	37.90
		1.6 .0630		2804016	41.25
		1.7 .0669		2804017	41.70
	51 .0670		28040670	41.70	
	50 .0700		28040700	41.70	
	49 .0709		2804018	41.70	
	1.8 .0730		28040730	41.70	
	1.9 .0748		2804019	41.70	
5/64	48	.0760		28040760	41.70
		.0781		280405	41.70
	47	.0785		28040785	41.75
	2.0 .0787		2804020	38.45	
46	.0810		28040810	41.75	
45	.0820		28040820	42.05	
	.0827		2804021	42.05	
44	.0860		28040860	42.05	
	2.2 .0866		2804022	42.05	
	.0890		28040890	42.70	
43	.0906		2804023	42.70	
42	.0935		28040935	42.85	
3/32		.0938		280406	39.55
		.0945		2804024	42.85
	41	.0960		28040960	43.75
	.0980		28040980	43.75	
	2.5 .0984		2804025	39.90	
	.0995		28040995	44.10	
	.1015		28041015	44.10	
	2.6 .1024		2804026	44.25	
	37 .1040		28041040	46.90	
	.1063		2804027	44.55	
	.1065		28041065	44.55	
	.1094		280407	45.90	
7/64	35	.1100		28041100	45.90
		.1102		2804028	45.90
	34	.1110		28041110	46.70
	.1130		28041130	47.25	
	2.9 .1142		2804029	47.25	
	.1160		28041160	47.25	
	.1181		2804030	43.75	
	.1200		28041200	47.50	
1/8		3.1 .1220		2804031	47.50
		.1250		280408	43.75
		.1260		2804032	47.50
	.1285		28041285	47.55	
	3.3 .1299		2804033	47.55	
	.1339		2804034	47.55	
	.1360		28041360	47.55	
	.1378		2804035	44.25	
9/64	28	.1405		28041405	48.20
		.1406		280409	49.85
		.1417		2804036	50.35
	.1440		28041440	50.35	

TOOL DIAMETER				TYPE 2804 EDP NO.	PRICE
FRACTION	WIRE/LETTER	METRIC (mm)	DECIMAL		
		3.7	.1457	2804037	\$51.05
	26		.1470	28041470	51.90
	25		.1495	28041495	52.10
		3.8	.1496	2804038	54.85
	24	3.9	.1520	28041520	52.10
			.1535	2804039	54.35
	23		.1540	28041540	54.35
5/32			.1562	280410	51.35
	22	4.0	.1570	28041570	56.20
			.1575	2804040	51.35
	21		.1590	28041590	57.65
	20		.1610	28041610	58.35
		4.1	.1614	2804041	58.35
		4.2	.1654	2804042	58.70
	19		.1660	28041660	58.70
		4.3	.1693	2804043	59.25
11/64	18		.1695	28041695	59.25
			.1719	280411	60.50
	17		.1730	28041730	60.50
		4.4	.1732	2804044	60.50
	16	4.5	.1770	28041770	61.90
			.1772	2804045	56.20
	15		.1800	28041800	62.20
		4.6	.1811	2804046	63.00
3/16	14	4.7	.1820	28041820	63.15
	13		.1850	2804047	63.55
		4.8	.1875	280412	60.90
	12		.1890	2804048	66.90
5/16	11	4.9	.1910	28041910	67.80
			.1929	2804049	67.80
	10		.1935	28041935	68.20
	9		.1960	28041960	70.65
	8	5.0	.1969	2804050	64.50
			.1990	28041990	71.00
	7	5.1	.2008	2804051	73.30
			.2010	28042010	73.30
13/64	6	5.2	.2031	280413	73.30
			.2040	28042040	73.30
	5		.2047	2804052	73.30
		5.3	.2055	28042055	73.30
	4	5.3	.2087	2804053	73.30
			.2090	28042090	77.00
	3	5.4	.2126	2804054	73.30
			.2130	28042130	73.30
7/32	5.5		.2165	2804055	66.90
			.2188	280414	66.80
	2	5.6	.2205	2804056	81.65
			.2210	28042210	81.65
	1	5.7	.2244	2804057	84.80
			.2280	28042280	85.80
		5.8	.2283	2804058	85.80
		5.9	.2323	2804059	85.80
15/64	A	6.0	.2340	28042340	85.80
			.2344	280415	85.80
	B		.2362	2804060	79.50
			.2380	28042380	87.50
9/16	C	6.1	.2402	2804061	87.50
			.2420	28042420	87.50
	D	6.2	.2441	2804062	87.50
			.2460	28042460	87.50

TOOL DIAMETER				TYPE 2804 EDP NO.	PRICE	
FRACTION	LETTER	METRIC (mm)	DECIMAL			
1/4	E	6.3	.2480	2804063	\$87.50	
			.2500	280416	79.50	
		6.4	.2520	2804064	96.40	
		6.5	.2559	2804065	96.30	
	F		.2570	28042570	96.30	
		6.6	.2598	2804066	101.10	
			.2610	28042610	96.30	
	G		.2638	2804067	101.10	
			.2656	280417	96.30	
			.2660	28042660	96.30	
17/64	H	6.8	.2677	2804068	101.10	
			.2717	2804069	101.10	
		6.9				
	I		.2720	28042720	96.30	
		7.0	.2756	2804070	87.85	
			.2770	28042770	96.30	
	J		.2795	2804071	109.70	
		7.1		.2810	28042810	104.40
				.2812	280418	95.50
9/32	K		7.2	.2835	2804072	118.55
			.2874	2804073	118.55	
		7.3				
	L		.2900	28042900	113.05	
		7.4	.2913	2804074	118.55	
			.2950	28042950	113.05	
19/64	M	7.5	.2953	2804075	113.05	
			.2969	280419	113.05	
		7.6	.2992	2804076	123.70	
	N		.3020	28043020	117.75	
			.3031	2804077	123.70	
		7.7				
5/16	O	7.8	.3071	2804078	123.70	
			.3110	2804079	123.70	
		7.9	.3125	280420	107.70	
	P	8.0	.3150	2804080	107.70	
			.3160	28043160	123.70	
		8.1	.3189	2804081	131.55	
	Q	8.2	.3228	2804082	131.55	
			.3230	28043230	125.20	
		8.3	.3268	2804083	150.50	
21/64			.3281	280421	143.20	
		8.4	.3307	2804084	150.50	
			.3320	28043320	143.20	
	R	8.5	.3346	2804085	143.20	
			.3386	2804086	150.50	
		8.6	.3390	28043390	143.20	
11/32	S	8.7	.3425	2804087	150.50	
			.3438	280422	143.20	
		8.8	.3465	2804088	151.20	
			.3480	28043480	143.95	
		8.9	.3504	2804089	151.20	
		9.0	.3543	2804090	132.35	
23/64	T		.3580	28043580	144.55	
		9.1	.3583	2804091	152.60	
			.3594	280423	145.20	
	U	9.2	.3622	2804092	154.45	
			.3661	2804093	154.45	
		9.3	.3680	28043680	147.10	
3/8	V	9.4	.3701	2804094	155.25	
			.3740	2804095	147.95	
		9.5	.3750	280424	135.40	
			.3770	28043770	175.75	
		9.6	.3780	2804096	184.70	

*Dimensions thru .0590" tool diameter: # of flutes = 4; flute length = 3/8" (except for .0312" & .0394" tool diameters, flute = 1/4"); overall length = 1 1/2"



SOLID CARBIDE HEAD REAMERS

STRAIGHT FLUTES & STRAIGHT STEEL SHANK

TYPE 2800 - FINISHED FRACTIONAL SIZES

Solid carbide head.

Straight steel shank on .1911" tool diameter and larger (smaller sizes have a straight solid carbide shank).

Diameters 7/64" and below provided with male centers.

Tool diameter tolerance thru .2500": plus .0002", minus .0000".
over .2500": plus .0003", minus .0000".

Shank diameter tolerance: plus .0000", minus .0010".

NOTE: For best results in reaming tough steel alloys and cast steels, we recommend Type 2480 Carbide Tipped Reamer (page 36).

This reamer utilizes a special steel cutting grade carbide with excellent cutting and wear characteristics.



OPTIONS:

Decimal sizes priced below.

Metric tool diameter.

Cutting diameter reduced for step or pilot.

End chamfer other than 45°.

End cutting or corner radius.

Increased/decreased circular margin.

Increased/decreased tool diam. back taper.

Shortened shank or reduced shank diameter.

Flat(s) or tang on shank.

TOOL DIAMETER		MAX. SHANK DIAM.	NUMBER OF FLUTES	LENGTH		TYPE 2800 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL			FLUTE	OVERALL				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14**
* -	-	.0800	4	3/4	3	280099	-	.0811 - .0890	\$131.40	\$97.10	\$85.25	\$80.00	\$73.95	\$69.50
* 3/32	.0938	.0880	4	3/4	3	280006	\$62.75	.0891 - .0970	131.40	97.10	85.25	80.00	73.95	69.50
* 7/64	.1094	.0943	4	7/8	3 1/2	280007	62.75	.0971 - .1120	131.40	97.10	85.25	80.00	73.95	69.50
* 1/8	.1250	.1099	4	7/8	3 1/2	280008	62.75	.1121 - .1280	131.40	97.10	85.25	80.00	73.95	69.50
* 9/64	.1406	.1255	4	7/8	3 1/2	280009	71.75	.1281 - .1435	140.40	106.00	94.40	88.95	83.10	78.40
* 5/32	.1562	.1411	4	1	4	280010	73.80	.1436 - .1590	142.40	108.05	96.40	91.05	85.05	80.70
* 11/64	.1719	.1567	4	1	4	280011	83.20	.1591 - .1750	151.60	117.50	106.00	100.45	94.55	90.00
* 3/16	.1875	.1724	4	1 1/8	4 1/2	280012	85.00	.1751 - .1910	153.60	119.25	107.55	102.25	96.30	91.90
13/64	.2031	.1880	6	1 1/4	5	280013	90.50	-	-	-	-	-	-	-
7/32	.2188	.1880	6	1 1/4	5	280014	90.50	.1911 - .2210	159.10	124.90	113.40	107.75	101.95	97.45
15/64	.2344	.2193	6	1 1/2	6	280015	96.30	-	-	-	-	-	-	-
1/4	.2500	.2193	6	1 1/2	6	280016	96.30	.2211 - .2530	164.95	130.50	119.10	113.70	107.55	103.10
17/64	.2656	.2505	6	1 1/2	6	280017	103.55	-	-	-	-	-	-	-
9/32	.2812	.2505	6	1 1/2	6	280018	103.55	.2531 - .2840	172.05	137.90	126.30	120.90	115.05	110.40
19/64	.2969	.2817	6	1 5/8	6	280019	107.75	-	-	-	-	-	-	-
5/16	.3125	.2817	6	1 5/8	6	280020	107.75	.2841 - .3150	176.30	142.05	130.50	125.10	119.25	114.50
21/64	.3281	.3130	6	1 3/4	6	280021	115.45	-	-	-	-	-	-	-
11/32	.3438	.3130	6	1 3/4	6	280022	115.45	.3151 - .3470	183.90	149.55	137.95	132.45	126.70	122.20
23/64	.3594	.3443	6	1 3/4	7	280023	124.10	-	-	-	-	-	-	-
3/8	.3750	.3443	6	1 3/4	7	280024	124.10	.3471 - .3780	192.50	158.20	146.70	141.40	135.45	130.90
25/64	.3906	.3755	6	1 3/4	7	280025	141.75	-	-	-	-	-	-	-
13/32	.4062	.3755	6	1 3/4	7	280026	141.75	.3781 - .4090	210.30	175.95	164.60	159.05	153.10	148.50
27/64	.4219	.4067	6	1 3/4	7	280027	150.70	-	-	-	-	-	-	-
7/16	.4375	.4067	6	1 3/4	7	280028	150.70	.4091 - .4410	219.05	184.60	173.30	167.95	161.95	157.20
29/64	.4531	.4380	6	1 3/4	8	280029	159.70	-	-	-	-	-	-	-
15/32	.4688	.4380	6	1 3/4	8	280030	159.70	.4411 - .4720	228.25	193.80	182.40	177.00	171.10	166.40
31/64	.4844	.4693	6	1 3/4	8	280031	171.40	-	-	-	-	-	-	-
1/2	.5000	.4693	6	1 3/4	8	280032	171.40	.4721 - .5030	240.05	205.60	194.00	188.60	182.70	178.20
33/64	.5156	.5005	6	1 7/8	9	280033	221.10	-	-	-	-	-	-	-
17/32	.5312	.5005	6	1 7/8	9	280034	221.10	.5031 - .5340	289.55	255.25	243.90	238.40	232.45	227.75
35/64	.5469	.5005	6	1 7/8	9	280035	261.00	-	-	-	-	-	-	-
9/16	.5625	.5005	6	1 7/8	9	280036	256.25	.5341 - .5660	323.55	289.60	278.40	273.10	267.30	262.90
37/64	.5781	.5630	6	1 7/8	9	280037	290.75	-	-	-	-	-	-	-
19/32	.5938	.5630	6	1 7/8	9	280038	290.75	.5661 - .5970	358.10	324.40	313.05	307.60	301.95	297.40
39/64	.6094	.5630	6	1 7/8	9	280039	294.05	-	-	-	-	-	-	-
5/8	.6250	.5630	6	1 7/8	9	280040	294.05	.5971 - .6280	361.25	327.45	316.50	311.00	305.30	300.60
21/32	.6562	.6255	6	2	9 1/2	280042	425.40	.6281 - .6590	489.40	457.40	446.60	441.50	436.60	431.60
11/16	.6875	.6255	6	2	9 1/2	280044	425.40	.6591 - .6910	489.40	457.40	446.60	441.50	436.60	431.60
23/32	.7188	.6880	6	2	9 1/2	280046	478.75	.6911 - .7220	542.70	510.50	499.95	494.75	490.00	484.95
3/4	.7500	.6880	6	2	9 1/2	280048	478.75	.7221 - .7530	542.70	510.50	499.95	494.75	490.00	484.95
25/32	.7812	.7505	8	2	10	280050	531.45	.7531 - .7840	595.40	563.25	552.60	547.50	542.55	537.50
13/16	.8125	.7817	8	2	10	280052	579.80	.7841 - .8160	643.80	611.60	601.05	595.95	591.05	586.05
27/32	.8438	.8130	8	2	10	280054	611.50	.8161 - .8470	675.45	643.40	632.70	627.60	622.60	617.70
7/8	.8750	.8440	8	2	10	280056	598.60	.8471 - .8780	662.60	630.50	619.90	614.75	609.80	604.80
29/32	.9062	.8755	8	2	10	280058	700.50	.8781 - .9090	764.50	732.30	721.75	716.60	711.70	706.75
15/16	.9375	.9067	8	2	10	280060	736.40	.9091 - .9410	800.25	768.25	757.50	752.40	747.50	742.50
31/32	.9688	.9380	8	2	10	280062	771.30	.9411 - .9720	835.25	803.20	792.50	787.45	782.50	777.45
1	1.0000	.9693	8	2	10	280064	800.30	.9721 - 1.0030	864.40	832.25	821.55	816.45	811.60	806.60

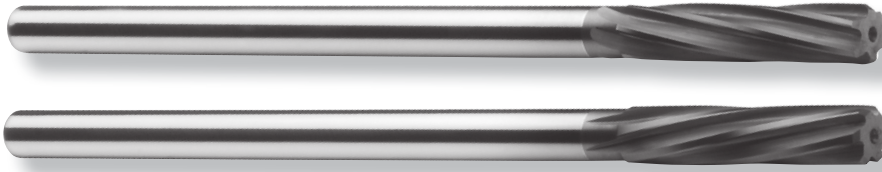
*Solid carbide head and shank (.0811" - .1910" tool diameters)

**Quantities of 15 or more: price of fractional size in same size range.



SOLID CARBIDE HEAD REAMERS

RIGHT OR LEFT SPIRAL FLUTES & STRAIGHT STEEL SHANK



TYPE 2810 - FINISHED FRACTIONAL SIZES - RIGHT HAND SPIRAL
TYPE 2820 - FINISHED FRACTIONAL SIZES - LEFT HAND SPIRAL

Solid carbide head.

Straight steel shank on .1911" tool diameter and larger (smaller sizes have a straight solid carbide shank).

Tool diameter tolerance thru .2500": plus .0002", minus .0000"
 over .2500": plus .0003", minus .0000"

Shank diameter tolerance: plus .0000", minus .0010"

Left spiral flutes should not be used on blind holes.

OPTIONS:

- Decimal sizes priced below.
- Metric tool diameter.
- Cutting diameter reduced for step or pilot.
- End chamfer other than 45°.
- End cutting or corner radius.
- Increased/decreased circular margin.
- Increased/decreased tool diam. back taper.
- Shortened shank or reduced shank diameter.
- Flat(s) or tang on shank.

NOTE: For best results in reaming tough steel alloys and cast steels, we recommend Type 2480 Carbide Tipped Reamer (page 36). This reamer utilizes a special steel cutting grade of carbide with excellent cutting and wear characteristics.

TOOL DIAMETER		MAX. SHANK DIAM.	NO. OF FLTS.	LENGTH		TYPE 2810 R SPIRAL EDP NO.	TYPE 2820 L SPIRAL EDP NO.	BOTH TYPES PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRACTIONAL	DECIMAL			FLUTE	OVERALL					1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14**
* 1/8	.1250	.1099	4	7/8	3 1/2	281008	282008	\$64.05	.1121 - .1280	\$121.55	\$92.90	\$83.00	\$78.50	\$73.50	\$69.75
* 9/64	.1406	.1255	4	7/8	3 1/2	281009	282009	73.10	.1281 - .1435	130.60	101.90	92.20	87.70	82.80	78.90
* 5/32	.1562	.1411	4	1	4	281010	282010	75.60	.1436 - .1590	133.00	104.10	94.45	89.95	84.90	81.05
* 11/64	.1719	.1567	4	1	4	281011	282011	93.45	.1591 - .1750	156.90	125.20	114.45	109.50	104.10	100.00
3/16	.1875	.1724	4	1 1/8	4 1/2	281012	282012	95.50	.1751 - .1910	158.60	127.10	116.40	111.45	106.05	101.70
13/64	.2031	.1880	6	1 1/4	5	281013	282013	101.70	-	-	-	-	-	-	-
7/32	.2188	.1880	6	1 1/4	5	281014	282014	110.40	.1911 - .2210	178.95	144.60	133.20	127.80	121.60	117.10
15/64	.2344	.2193	6	1 1/2	6	281015	282015	117.60	-	-	-	-	-	-	-
1/4	.2500	.2193	6	1 1/2	6	281016	282016	117.60	.2211 - .2530	186.10	151.60	140.40	134.70	128.75	124.20
17/64	.2656	.2505	6	1 1/2	6	281017	282017	126.30	-	-	-	-	-	-	-
9/32	.2812	.2505	6	1 1/2	6	281018	282018	126.30	.2531 - .2840	194.90	160.60	148.95	143.55	137.60	133.20
19/64	.2969	.2817	6	1 3/8	6	281019	282019	131.70	-	-	-	-	-	-	-
5/16	.3125	.2817	6	1 3/8	6	281020	282020	131.70	.2841 - .3150	200.10	165.80	154.40	148.80	142.90	138.30
21/64	.3281	.3130	6	1 3/8	6	281021	282021	140.55	-	-	-	-	-	-	-
11/32	.3438	.3130	6	1 3/8	6	281022	282022	140.55	.3151 - .3470	209.00	174.90	163.20	157.75	151.80	147.40
23/64	.3594	.3443	6	1 3/4	7	281023	282023	151.45	-	-	-	-	-	-	-
3/8	.3750	.3443	6	1 3/4	7	281024	282024	151.45	.3471 - .3780	219.70	185.30	174.00	168.70	162.70	157.90
25/64	.3906	.3755	6	1 3/4	7	281025	282025	173.00	-	-	-	-	-	-	-
13/32	.4062	.3755	6	1 3/4	7	281026	282026	173.00	.3781 - .4090	241.45	207.00	195.60	190.05	184.40	179.55
27/64	.4219	.4067	6	1 3/4	7	281027	282027	183.50	-	-	-	-	-	-	-
7/16	.4375	.4067	6	1 3/4	7	281028	282028	183.50	.4091 - .4410	252.00	217.55	206.25	200.75	194.90	190.20
29/64	.4531	.4380	6	1 3/4	8	281029	282029	194.75	-	-	-	-	-	-	-
15/32	.4688	.4380	6	1 3/4	8	281030	282030	194.75	.4411 - .4720	263.20	228.90	217.45	211.95	206.20	201.45
31/64	.4844	.4693	6	1 3/4	8	281031	282031	208.90	-	-	-	-	-	-	-
1/2	.5000	.4693	6	1 3/4	8	281032	282032	208.90	.4721 - .5030	277.45	243.10	231.70	226.10	220.45	215.70
33/64	.5156	.5005	6	1 7/8	9	281033	282033	248.30	-	-	-	-	-	-	-
17/32	.5312	.5005	6	1 7/8	9	281034	282034	243.75	.5031 - .5340	305.95	274.75	264.30	259.40	254.10	250.05
35/64	.5469	.5005	6	1 7/8	9	281035	282035	287.95	-	-	-	-	-	-	-
9/16	.5625	.5005	6	1 7/8	9	281036	282036	287.95	.5341 - .5660	350.10	318.90	308.50	303.50	298.10	293.95
37/64	.5781	.5630	6	1 7/8	9	281037	282037	326.70	-	-	-	-	-	-	-
19/32	.5938	.5630	6	1 7/8	9	281038	282038	326.70	.5661 - .5970	388.60	357.70	347.30	342.30	337.00	332.90
39/64	.6094	.5630	6	1 7/8	9	281039	282039	330.45	-	-	-	-	-	-	-
5/8	.6250	.5630	6	1 7/8	9	281040	282040	330.45	.5971 - .6280	392.60	361.55	351.00	346.10	340.80	336.50
21/32	.6562	.6255	6	2	9 1/2	281042	282042	478.50	.6281 - .6590	550.50	514.40	502.40	496.50	491.10	485.40
11/16	.6875	.6255	6	2	9 1/2	281044	282044	478.50	.6591 - .6910	550.50	514.40	502.40	496.50	491.10	485.40
23/32	.7188	.6880	6	2	9 1/2	281046	282046	538.40	.6911 - .7220	610.45	574.05	562.10	556.50	550.90	545.20
3/4	.7500	.6880	6	2	9 1/2	281048	282048	538.40	.7221 - .7530	610.45	574.05	562.10	556.50	550.90	545.20
25/32	.7812	.7505	8	2	10	281050	282050	597.60	.7531 - .7840	669.50	633.45	621.40	615.60	610.00	604.50
13/16	.8125	.7817	8	2	10	281052	282052	652.00	.7841 - .8160	724.00	687.80	675.90	670.05	664.50	658.90
27/32	.8438	.8130	8	2	10	281054	282054	687.50	.8161 - .8470	759.50	723.50	711.45	705.75	700.20	694.50
7/8	.8750	.8440	8	2	10	281056	282056	673.20	.8471 - .8780	745.20	709.10	697.05	691.25	685.80	680.20
29/32	.9062	.8755	8	2	10	281058	282058	787.80	.8781 - .9090	859.75	823.75	811.55	805.80	800.25	794.70
15/16	.9375	.9067	8	2	10	281060	282060	828.00	.9091 - .9410	899.95	863.90	851.90	846.05	840.50	835.00
31/32	.9688	.9380	8	2	10	281062	282062	867.30	.9411 - .9720	939.25	903.10	891.25	885.40	879.90	874.40
1	1.0000	.9693	8	2	10	281064	282064	900.00	.9721 - 1.0030	972.00	935.90	924.00	918.30	912.60	907.10

*Solid carbide head and shank (.1121" - .1910" tool diameters)

**Quantities of 15 or more: price of fractional size in same size range.



CHUCKING REAMERS - SOLID CARBIDE

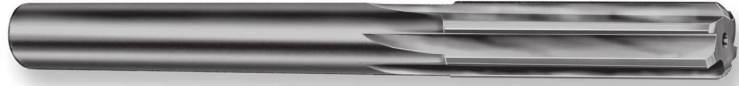
STRAIGHT FLUTES & STRAIGHT SHANK - SHORT SERIES

TYPE 2802 - STRAIGHT FLUTES - STRAIGHT SHANK

Solid carbide head and straight shank.

Tool diameter tolerance thru .2500": plus .0002", minus .0000".
over .2500": plus .0003", minus .0000".

Shank diameter tolerance: plus .0000", minus .0010".



TOOL DIAMETER RANGE	DIMENSIONS				TYPE 2802 STRAIGHT EDP NO.	PRICE EACH - FINISHED TO DECIMAL SIZE						
	MAX. SHANK DIAM.	NO. OF FLUTES	LENGTH			1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14	OVER 14
			FLUTE	OVERALL								
*0.0591 - 0.0660	.0580	4	3/8	1 1/2	280204	\$127.20	\$79.20	\$63.15	\$55.65	\$47.35	\$40.85	\$31.45
*0.0661 - 0.0740	.0650	4	1/2	1 3/4	280245	127.65	79.50	63.55	55.90	47.70	41.25	31.90
*0.0741 - 0.0810	.0730	4	1/2	1 3/4	280205	127.85	79.70	63.65	56.20	47.85	41.55	31.95
*0.0811 - 0.0890	.0800	4	1/2	2	280255	128.50	80.65	64.55	57.00	48.85	42.35	32.90
*0.0891 - 0.0970	.0880	4	1/2	2	280206	129.40	81.30	65.35	57.70	49.60	42.85	33.70
*0.0971 - 0.1120	.0943	4	5/8	2 1/4	280207	129.90	81.70	65.80	58.15	50.00	43.55	34.10
0.1121 - 0.1280	.1099	4	5/8	2 1/4	280208	132.20	84.10	68.00	60.50	52.10	45.70	36.40
0.1281 - 0.1435	.1255	4	3/4	2 1/2	280209	133.05	85.10	68.95	61.50	53.20	46.75	37.30
0.1436 - 0.1590	.1411	4	3/4	2 1/2	280210	135.35	87.25	71.20	63.65	55.55	48.90	39.55
0.1591 - 0.1750	.1567	4	7/8	2 3/4	280211	140.50	92.40	76.30	68.80	60.55	54.15	44.60
0.1751 - 0.1910	.1724	4	7/8	2 3/4	280212	143.85	95.75	79.70	72.20	63.80	57.55	48.05
0.1911 - 0.2210	.1880	6	1	3	280214	149.80	101.75	85.75	78.15	70.05	63.50	54.15
0.2211 - 0.2530	.2193	6	1	3	280216	159.95	111.95	95.90	88.45	80.15	73.65	64.35
0.2531 - 0.2840	.2505	6	1 1/8	3 1/4	280218	171.90	123.75	107.75	100.15	91.95	85.50	76.15
0.2841 - 0.3150	.2817	6	1 1/8	3 1/4	280220	184.95	136.90	120.70	113.35	105.10	98.60	89.25
0.3151 - 0.3470	.3130	6	1 1/4	3 1/2	280222	204.35	156.35	140.35	132.80	124.60	117.85	108.75
0.3471 - 0.3780	.3443	6	1 1/4	3 1/2	280224	206.80	158.95	143.00	135.35	127.15	120.55	111.20
0.3781 - 0.4090	.3755	6	1 3/8	3 3/4	280226	224.00	175.95	159.95	152.20	144.05	137.65	128.20
0.4091 - 0.4410	.4067	6	1 3/8	3 3/4	280228	225.95	177.90	161.90	154.30	146.05	139.55	130.15
0.4411 - 0.4720	.4380	6	1 1/2	4	280230	239.65	191.70	175.55	168.00	159.80	153.35	143.95
0.4721 - 0.5150	.4693	6	1 1/2	4	280232	253.05	205.00	188.85	181.40	173.15	166.75	157.30

*Provided with male centers

CHUCKING REAMERS - SOLID CARBIDE

RIGHT SPIRAL OR LEFT SPIRAL FLUTES - STRAIGHT SHANK - SHORT SERIES

TYPE 2812 - RIGHT SPIRAL FLUTES - STRAIGHT SHANK

TYPE 2822 - LEFT SPIRAL FLUTES - STRAIGHT SHANK

Solid carbide head and straight shank.

Tool diameter tolerance thru .2500": plus .0002", minus .0000".
over .2500": plus .0003", minus .0000".

Shank diameter tolerance: plus .0000", minus .0010".

Left spiral flutes should not be used on blind holes.



TOOL DIAMETER RANGE	DIMENSIONS				TYPE 2812 R SPIRAL EDP NO.	TYPE 2822 L SPIRAL EDP NO.	PRICE EACH - FINISHED TO DECIMAL SIZE						
	MAX. SHANK DIAM.	NO. OF FLUTES	LENGTH				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14	OVER 14
			FLUTE	OVERALL									
*0.0971 - 0.1120	.0943	4	5/8	2 1/4	281207	282207	\$134.80	\$86.30	\$70.05	\$62.40	\$54.00	\$47.35	\$37.80
0.1121 - 0.1280	.1099	4	5/8	2 1/4	281208	282208	137.35	88.75	72.50	64.90	56.40	49.90	40.45
0.1281 - 0.1435	.1255	4	3/4	2 1/2	281209	282209	145.35	94.50	77.45	69.30	60.65	53.75	43.60
0.1436 - 0.1590	.1411	4	3/4	2 1/2	281210	282210	148.10	97.10	80.00	72.00	63.30	56.25	46.50
0.1591 - 0.1750	.1567	4	7/8	2 3/4	281211	282211	154.10	103.10	85.95	77.85	69.20	62.20	52.20
0.1751 - 0.1910	.1724	4	7/8	2 3/4	281212	282212	157.85	107.05	89.80	81.70	73.00	66.05	56.15
0.1911 - 0.2210	.1880	6	1	3	281214	282214	172.75	119.35	101.45	92.95	83.80	76.50	66.05
0.2211 - 0.2530	.2193	6	1	3	281216	282216	185.40	131.70	113.85	105.55	96.30	89.25	78.85
0.2531 - 0.2840	.2505	6	1 1/8	3 1/4	281218	282218	199.90	146.45	128.55	120.25	110.90	103.90	93.40
0.2841 - 0.3150	.2817	6	1 1/8	3 1/4	281220	282220	215.65	162.30	144.35	135.90	126.85	119.55	109.05
0.3151 - 0.3470	.3130	6	1 1/4	3 1/2	281222	282222	239.50	186.20	168.15	159.80	150.60	143.20	132.85
0.3471 - 0.3780	.3443	6	1 1/4	3 1/2	281224	282224	242.80	189.35	171.45	162.90	153.85	146.60	136.15
0.3781 - 0.4090	.3755	6	1 3/8	3 3/4	281226	282226	249.45	196.00	178.05	169.60	160.45	153.20	142.85
0.4091 - 0.4410	.4067	6	1 3/8	3 3/4	281228	282228	251.60	198.00	180.10	171.75	162.50	155.30	144.95
0.4411 - 0.4720	.4380	6	1 1/2	4	281230	282230	266.85	213.35	195.55	187.20	177.95	170.75	160.25
0.4721 - 0.5150	.4693	6	1 1/2	4	281232	282232	281.65	228.15	210.35	202.00	192.70	185.45	175.05

*Provided with male centers



REDUCED SHANK COUNTERBORES

CARBIDE TIPPED - STRAIGHT SHANK - INTERCHANGEABLE PILOT TYPE



TYPE 2522 - STRAIGHT SHANK

3 flutes.

Furnished with 1/64" corner radius.

Carbide tips brazed to tough alloy steel body.

Tool diameter tolerance: plus .001", minus .000".

Shank diameter tolerance: plus .0000", minus .001".

USE:

For counterboring and spotfacing non-ferrous materials, composites, and non-metals used in airframe manufacturing.

OPTIONS:

Modified tool diameter - priced below.

Metric tool diameter.

Cutting diameter reduced for step.

Corner chamfer or corner radius.

TOOL DIAMETER		DIMENSIONS				TYPE 2522 EDP NO.	PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE						
		MIN CUT DIAM.	PILOT HOLE DIAM.	SMALL SHANK DIAM.	OVERALL LENGTH				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*	
FRAC.	DEC.														
1/4	.2500	.1250	.0938	1/4	2 3/8	252208	\$73.70	0.2381 - 0.2530	\$125.30	\$99.65	\$90.90	\$86.80	\$82.45	\$78.85	
9/32	.2812	.1250	.0938	1/4	2 3/8	252209	73.80	0.2531 - 0.2840	125.45	99.70	91.05	86.90	82.50	78.95	
5/16	.3125	.1250	.0938	1/4	2 3/8	252210	75.70	0.2841 - 0.3150	127.40	101.45	92.85	88.60	84.30	80.80	
11/32	.3438	.1250	.0938	1/4	2 3/8	252211	77.20	0.3151 - 0.3470	128.90	102.95	94.45	90.15	85.85	82.35	
3/8	.3750	.1250	.0938	1/4	2 3/8	252212	77.45	0.3471 - 0.3780	129.05	103.20	94.70	90.40	85.95	82.50	
13/32	.4062	.1560	.1250	1/4	2 3/4	252213	88.05	0.3781 - 0.4090	139.55	113.95	105.15	101.05	96.65	93.20	
7/16	.4375	.1560	.1250	1/4	2 3/4	252214	94.90	0.4091 - 0.4410	146.50	120.65	112.20	107.80	103.60	99.95	
15/32	.4688	.1560	.1250	1/4	2 3/4	252215	96.50	0.4411 - 0.4720	148.10	122.25	113.70	109.55	105.10	101.55	
1/2	.5000	.1560	.1250	1/4	2 3/4	252216	97.65	0.4721 - 0.5030	149.35	123.50	114.85	110.60	106.25	102.70	
17/32	.5312	.1560	.1250	1/4	2 3/4	252217	98.20	0.5031 - 0.5340	149.80	123.95	115.35	111.10	106.70	103.20	
9/16	.5625	.1560	.1250	1/4	2 3/4	252218	98.60	0.5341 - 0.5660	150.20	124.45	115.80	111.55	107.25	103.65	
19/32	.5938	.1560	.1250	1/4	2 3/4	252219	99.10	0.5661 - 0.5970	150.85	125.00	116.50	112.20	107.75	104.20	
5/8	.6250	.1560	.1250	1/4	2 3/4	252220	100.25	0.5971 - 0.6280	151.80	126.15	117.45	113.30	108.90	105.25	
21/32	.6562	.2190	.1875	1/4	2 3/4	252221	111.35	0.6281 - 0.6590	162.95	137.15	128.65	124.45	120.00	116.55	
11/16	.6875	.2190	.1875	1/4	2 3/4	252222	117.00	0.6591 - 0.6910	168.60	142.85	134.20	130.00	125.50	122.05	
23/32	.7188	.2190	.1875	1/4	2 3/4	252223	120.95	0.6911 - 0.7220	172.40	146.80	138.10	133.95	129.50	126.10	
3/4	.7500	.2190	.1875	1/4	2 3/4	252224	122.50	0.7221 - 0.7530	174.00	148.30	139.55	135.45	131.05	127.55	
25/32	.7812	.2190	.1875	1/4	2 3/4	252225	122.90	0.7531 - 0.7840	174.60	148.75	140.20	135.85	131.55	128.00	
13/16	.8125	.2190	.1875	1/4	2 3/4	252226	124.00	0.7841 - 0.8160	175.80	149.85	141.25	137.00	132.70	129.10	
27/32	.8438	.2190	.1875	1/4	2 3/4	252227	124.95	0.8161 - 0.8470	176.55	150.55	142.00	137.80	133.50	130.00	
7/8	.8750	.2190	.1875	1/4	2 3/4	252228	126.15	0.8471 - 0.8780	177.65	151.80	143.35	139.05	134.65	131.15	
29/32	.9062	.2190	.1875	1/4	2 3/4	252229	126.90	0.8781 - 0.9090	178.60	152.80	144.25	139.95	135.55	132.05	
15/16	.9375	.2190	.1875	1/4	2 3/4	252230	128.10	0.9091 - 0.9410	179.80	154.00	145.40	141.15	136.90	133.15	
31/32	.9688	.2190	.1875	1/4	2 3/4	252231	129.05	0.9411 - 0.9720	180.60	154.80	146.35	141.95	137.65	134.10	
1	1.0000	.2190	.1875	1/4	2 3/4	252232	129.45	0.9721 - 1.0030	181.10	155.25	146.55	142.40	137.95	134.45	
1 1/16	1.0625	.2190	.1875	3/8	2 3/4	252234	165.25	1.0031 - 1.0660	216.75	190.90	182.50	178.10	173.70	170.20	
1 1/8	1.1250	.2190	.1875	3/8	2 3/4	252236	176.25	1.0661 - 1.1280	227.80	202.05	193.55	189.25	184.85	181.30	
1 3/16	1.1875	.2190	.1875	3/8	2 3/4	252238	178.55	1.1281 - 1.1905	230.10	204.35	195.75	191.50	187.15	183.60	
1 1/4	1.2500	.2810	.2500	3/8	2 3/4	252240	181.80	1.1906 - 1.2530	233.60	207.65	198.95	194.80	190.60	186.95	
1 3/8	1.3125	.2810	.2500	3/8	2 3/4	252242	185.20	1.2531 - 1.3155	236.75	210.95	202.45	198.20	193.70	190.20	
1 5/8	1.3750	.2810	.2500	3/8	2 3/4	252244	187.30	1.3156 - 1.3780	239.05	213.35	204.65	200.35	196.05	192.40	
1 7/8	1.4375	.2810	.2500	3/8	2 3/4	252246	189.55	1.3781 - 1.4405	241.30	215.40	206.90	202.60	198.25	194.70	
1 1/2	1.5000	.2810	.2500	3/8	2 3/4	252248	199.60	1.4406 - 1.5030	253.05	226.35	217.40	213.05	208.45	204.85	
1 9/16	1.5625	.3430	.3125	1/2	3 1/16	252250	222.00	1.5031 - 1.5660	275.50	248.85	239.90	235.55	231.05	227.45	
1 5/8	1.6250	.3430	.3125	1/2	3 1/16	252252	224.90	1.5661 - 1.6280	278.50	251.75	242.95	238.50	233.90	230.15	
1 11/16	1.6875	.3430	.3125	1/2	3 1/16	252254	227.85	1.6281 - 1.6910	281.45	254.75	245.85	241.45	236.95	233.25	
1 3/4	1.7500	.3430	.3125	1/2	3 1/16	252256	231.45	1.6911 - 1.7530	284.95	258.10	249.20	244.80	240.35	236.70	
1 13/16	1.8125	.3430	.3125	1/2	3 1/16	252258	234.20	1.7531 - 1.8160	287.20	260.50	251.60	247.20	242.55	238.95	
1 7/8	1.8750	.3430	.3125	1/2	3 1/16	252260	235.85	1.8161 - 1.8780	289.45	262.65	253.65	249.40	244.80	241.10	
1 15/16	1.9375	.3430	.3125	1/2	3 1/16	252262	260.30	1.8781 - 1.9410	313.85	287.00	278.10	273.70	269.15	265.55	
2	2.0000	.3430	.3125	1/2	3 1/16	252264	323.85	1.9411 - 2.0030	377.60	350.85	341.90	337.50	332.90	329.15	

*Quantities of 15 or more: price of fractional size in same size range.



CAPSCREW COUNTERBORES

CARBIDE TIPPED - STRAIGHT SHANK



TYPE 2513 - STRAIGHT SHANK - FOR NON-FERROUS & CAST IRON

TYPE 2515 - STRAIGHT SHANK - FOR STEEL

Carbide tips brazed to hardened alloy steel bodies.

Right spiral smooth flutes.

Integral pilot type.

Tools are designed with appropriate carbide grade and tool geometry for material being machined. The pilot is manufactured in nominal screw body diameters as well as 1/64" and 1/32" over size diameters.

OPTIONS:

Intermediate decimal diameters.

TOOL DIAMETER		PILOT DIAMETER	PILOT LENGTH	SHANK DIAMETER	OVERALL LENGTH	TYPE 2513 - NON-FERR/CI		PRICE	TYPE 2515 - STEEL		PRICE
DECIMAL	SCREW SIZE					NO. OF FLTS.	EDP NO.		NO. OF FLTS.	EDP NO.	
.3820	1/4	.2500	.3125	5/16	5 5/8	3	25132500	\$106.25	3	25152500	\$116.85
.3980	1/4	.2650	.3125	5/16	5 5/8	3	25132650	118.05	3	25152650	129.90
.4140	1/4	.2810	.3125	5/16	5 5/8	3	25132810	118.05	3	25152810	129.90
.4750	5/16	.3125	.3750	3/8	6 1/8	3	25133125	118.80	3	25153125	130.80
.4910	5/16	.3280	.3750	3/8	6 1/8	3	25133280	118.80	3	25153280	130.80
.5070	5/16	.3430	.3750	3/8	6 1/8	3	25133430	118.80	3	25153430	130.80
.5720	3/8	.3750	.5000	1/2	6 1/2	3	25133750	133.95	3	25153750	147.40
.5880	3/8	.3900	.5000	1/2	6 1/2	3	25133900	133.95	3	25153900	147.40
.6040	3/8	.4060	.5000	1/2	6 1/2	3	25134060	133.95	3	25154060	147.40
.6630	7/16	.4375	.5000	1/2	7	3	25134375	129.45	3	25154375	142.40
.6790	7/16	.4530	.5000	1/2	7	3	25134530	129.45	3	25154530	142.40
.6950	7/16	.4680	.5000	1/2	7	3	25134680	129.45	3	25154680	142.40
.7570	1/2	.5000	.5000	1/2	7 1/2	3	25135000	146.80	3	25155000	161.55
.7730	1/2	.5150	.5000	1/2	7 1/2	3	25135150	146.80	3	25155150	161.55
.7890	1/2	.5310	.5000	1/2	7 1/2	3	25135310	146.80	3	25155310	161.55
.8510	9/16	.5625	.5625	5/8	7 3/8	3	25135625	141.85	3	25155625	156.10
.8670	9/16	.5780	.5625	5/8	7 3/8	3	25135780	141.85	3	25155780	156.10
.8830	9/16	.5930	.5625	5/8	7 3/8	3	25135930	141.85	3	25155930	156.10
.9450	5/8	.6250	.6250	5/8	7 5/8	3	25136250	161.75	3	25156250	177.95
.9610	5/8	.6400	.6250	5/8	7 5/8	3	25136400	161.75	3	25156400	177.95
.9770	5/8	.6560	.6250	5/8	7 5/8	3	25136560	161.75	3	25156560	177.95
1.1330	3/4	.7500	.7500	3/4	7 3/4	3	25137500	159.45	3	25157500	175.35
1.1490	3/4	.7650	.7500	3/4	7 3/4	3	25137650	159.45	3	25157650	175.35
1.1650	3/4	.7810	.7500	3/4	7 3/4	3	25137810	159.45	3	25157810	175.35
1.3220	7/8	.8750	.8750	7/8	8 1/8	4	25138750	177.25	4	25158750	195.05
1.3380	7/8	.8910	.8750	7/8	8 1/8	4	25138910	177.25	4	25158910	195.05
1.3540	7/8	.9060	.8750	7/8	8 1/8	4	25139060	177.25	4	25159060	195.05
1.5100	1	1.0000	1.0000	1	8 1/2	4	25130000	202.95	4	25150000	223.25
1.5260	1	1.0150	1.0000	1	8 1/2	4	25130156	202.95	4	25150156	223.25
1.5420	1	1.0310	1.0000	1	8 1/2	4	25130313	202.95	4	25150313	223.25

TYPE 2513 - STRAIGHT SHANK - FOR NON-FERROUS & CAST IRON - METRIC

TYPE 2515 - STRAIGHT SHANK - FOR STEEL - METRIC

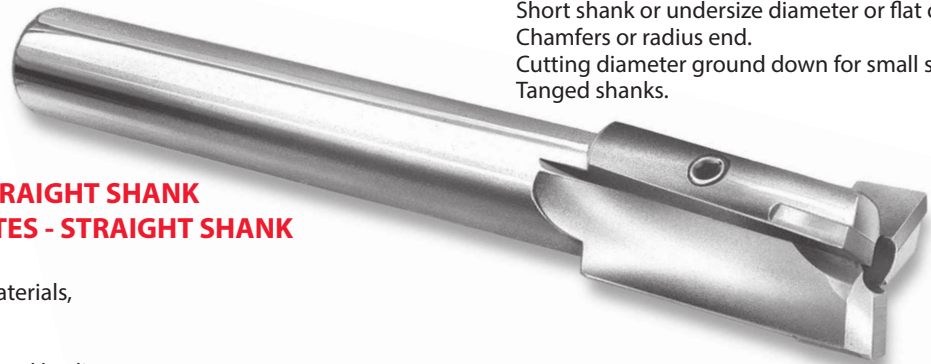
Same as above except metric sizes.

TOOL DIAMETER		PILOT DIAMETER	PILOT LENGTH	SHANK DIAMETER	OVERALL LENGTH	TYPE 2513 - NON-FERR/CI		PRICE	TYPE 2515 - STEEL		PRICE
DECIMAL	SCREW SIZE MM					NO. OF FLTS.	EDP NO.		NO. OF FLTS.	EDP NO.	
.3543	5	5.5	9/32	5/16	5 5/8	3	2513055	\$117.70	3	2515055	\$129.45
.4134	6	6.5	5/16	5/16	5 5/8	3	2513065	124.25	3	2515065	136.70
.5315	8	8.5	3/8	1/2	6 1/2	3	2513085	147.60	3	2515085	162.30
.6496	10	10.5	1/2	1/2	7	3	2513105	160.55	3	2515105	176.55
.7283	12	12.5	1/2	1/2	7 1/2	3	2513125	150.60	3	2515125	165.55
.8465	14	14.5	9/16	5/8	7 3/8	3	2513145	175.65	3	2515145	193.05
.9646	16	16.5	5/8	5/8	7 5/8	3	2513165	183.45	3	2515165	201.80
1.2008	20	20.5	3/4	7/8	8	3	2513205	170.15	3	2515205	187.15



COUNTERBORES

CARBIDE TIPPED - STRAIGHT SHANK - INTERCHANGEABLE PILOT TYPE



OPTIONS:

- Intermediate decimal or metric diameters.
- Short shank or undersize diameter or flat on shank.
- Chamfers or radius end.
- Cutting diameter ground down for small step.
- Tanged shanks.

TYPE 2512 - FOUR FLUTES - STRAIGHT SHANK

TYPE 2514 - THREE/FOUR FLUTES - STRAIGHT SHANK

BOTH TYPES:

For machining cast iron, non-ferrous materials, composites, plastics and non-metals.
 Right spiral polished flutes.
 Carbide tips brazed to hardened alloy steel bodies.
 Cutting diameter tolerance: plus .001", minus .000".
 Shank diameter tolerance: plus .0000", minus .0005".

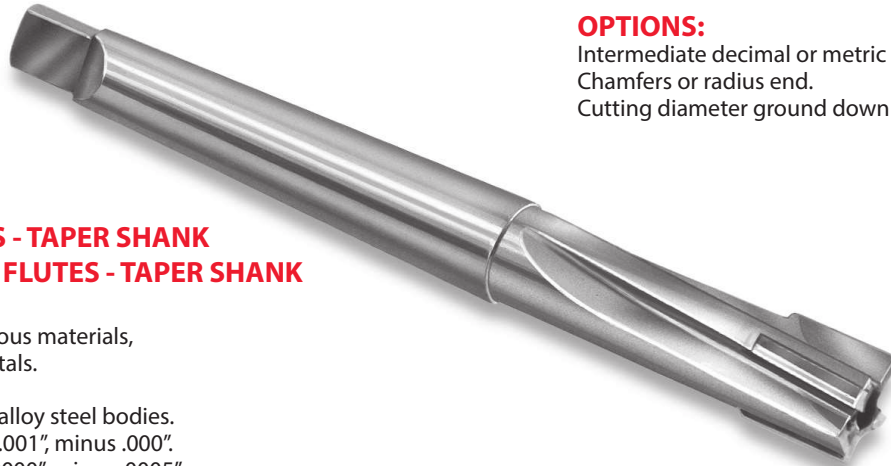
TOOL DIAMETER		MIN CUT DIAM.	PILOT HOLE DIAM.	OVER-ALL LENGTH	SHANK DIAM.	TYPE 2512		TYPE 2514		BOTH TYPES PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRAC.	DEC.					NO. OF FLTS	EDP NO.	NO. OF FLTS	EDP NO.			1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
1/4	.2500	.114	3/32	3 13/16	15/64	-	-	3	251408	\$91.40	0.2381 - 0.2530	\$142.95	\$117.20	\$108.60	\$104.30	\$99.90	\$96.35
9/32	.2812	.114	3/32	3 13/16	17/64	-	-	3	251409	111.70	0.2531 - 0.2840	163.15	137.55	128.90	124.65	120.35	116.75
5/16	.3125	.114	3/32	3 13/16	19/64	-	-	3	251410	95.30	0.2841 - 0.3150	143.65	119.55	111.55	107.45	103.40	100.05
11/32	.3438	.114	3/32	3 13/16	5/16	-	-	3	251411	120.65	0.3151 - 0.3470	169.00	144.75	136.70	132.75	128.65	125.20
3/8	.3750	.182	5/32	4 1/16	5/16	-	-	3	251412	101.05	0.3471 - 0.3780	145.75	123.40	115.95	112.30	108.50	105.50
13/32	.4062	.182	5/32	4 1/16	3/8	-	-	3	251413	113.95	0.3781 - 0.4090	158.60	136.35	128.85	125.15	121.40	118.35
7/16	.4375	.182	5/32	4 1/16	3/8	-	-	3	251414	103.70	0.4091 - 0.4410	148.35	126.00	118.55	115.05	111.10	108.10
15/32	.4688	.228	3/16	4 5/16	7/16	-	-	3	251415	126.60	0.4411 - 0.4720	171.25	148.85	141.60	137.90	133.95	130.95
1/2	.5000	.228	3/16	4 5/16	7/16	4	251216	3	251416	115.15	0.4721 - 0.5030	159.70	137.30	130.05	126.25	122.55	119.50
17/32	.5312	.228	3/16	4 5/16	1/2	4	251217	3	251417	130.25	0.5031 - 0.5340	174.95	152.70	145.20	141.60	137.70	134.65
9/16	.5625	.228	3/16	4 5/16	1/2	4	251218	3	251418	118.50	0.5341 - 0.5660	163.15	140.75	133.35	129.60	125.90	122.75
19/32	.5938	.228	3/16	5 1/8	1/2	4	251219	3	251419	131.65	0.5661 - 0.5970	176.25	153.95	146.55	142.85	139.00	136.00
5/8	.6250	.228	3/16	5 1/8	1/2	4	251220	3	251420	119.70	0.5971 - 0.6280	164.25	141.85	134.45	130.85	127.00	124.00
21/32	.6562	.228	3/16	5 1/8	1/2	4	251221	3	251421	139.30	0.6281 - 0.6590	183.90	161.70	154.20	150.50	146.80	143.65
11/16	.6875	.228	3/16	5 1/8	1/2	4	251222	3	251422	126.70	0.6591 - 0.6910	171.35	149.05	141.65	137.95	134.25	131.00
23/32	.7188	.290	1/4	5 3/8	1/2	4	251223	3	251423	142.60	0.6911 - 0.7220	187.15	164.90	157.45	153.90	150.00	147.00
3/4	.7500	.290	1/4	5 3/8	1/2	4	251224	3	251424	129.55	0.7221 - 0.7530	174.25	151.95	144.45	140.75	137.05	133.85
25/32	.7812	.290	1/4	5 3/8	5/8	4	251225	3	251425	145.70	0.7531 - 0.7840	190.20	167.85	160.55	156.80	152.95	149.95
13/16	.8125	.290	1/4	5 3/8	5/8	4	251226	3	251426	132.30	0.7841 - 0.8160	176.90	154.55	147.15	143.40	139.80	136.70
27/32	.8438	.290	1/4	5 3/8	3/4	4	251227	3	251427	154.25	0.8161 - 0.8470	198.90	176.50	169.20	165.45	161.75	158.60
7/8	.8750	.290	1/4	5 3/8	3/4	4	251228	3	251428	140.25	0.8471 - 0.8780	184.90	162.60	155.20	151.45	147.70	144.60
29/32	.9062	.290	1/4	6 1/8	3/4	4	251229	3	251429	157.35	0.8781 - 0.9090	202.05	179.70	172.25	168.65	164.85	161.80
15/16	.9375	.290	1/4	6 1/8	3/4	4	251230	3	251430	143.15	0.9091 - 0.9410	187.85	165.45	158.05	154.35	150.55	147.50
31/32	.9688	.353	5/16	6 3/8	3/4	4	251231	3	251431	161.95	0.9411 - 0.9720	206.50	184.20	176.80	173.10	169.40	166.35
1	1.0000	.353	5/16	6 3/8	3/4	4	251232	3	251432	147.20	0.9721 - 1.0030	191.95	169.50	162.05	158.40	154.65	151.55
1 1/16	1.0625	.353	5/16	6 3/8	3/4	4	251234	3	251434	148.75	1.0031 - 1.0660	193.50	171.05	163.60	160.10	156.20	153.15
1 1/8	1.1250	.353	5/16	6 3/8	1	4	251236	3	251436	152.70	1.0661 - 1.1280	197.20	174.95	167.60	163.75	160.10	156.95
1 3/16	1.1875	.353	5/16	6 3/8	1	4	251238	3	251438	159.40	1.1281 - 1.1905	203.95	181.75	174.30	170.60	166.80	163.75
1 1/4	1.2500	.426	3/8	6 5/8	1	-	-	4	251440	177.50	1.1906 - 1.2530	225.85	201.75	193.65	189.70	185.50	182.35
1 5/16	1.3125	.426	3/8	6 5/8	1	-	-	4	251442	191.55	1.2531 - 1.3155	240.10	215.90	207.70	203.80	199.65	196.40
1 3/8	1.3750	.426	3/8	6 5/8	1	-	-	4	251444	201.65	1.3156 - 1.3780	249.95	225.70	217.60	213.60	209.65	206.25
1 7/16	1.4375	.426	3/8	7 7/8	1 1/4	-	-	4	251446	220.95	1.3781 - 1.4405	273.50	247.20	238.45	234.05	229.75	226.05
1 1/2	1.5000	.426	3/8	7 7/8	1 1/4	-	-	4	251448	255.45	1.4406 - 1.5030	310.00	282.60	273.60	269.20	264.55	260.75
1 5/8	1.5625	.489	7/16	8 1/8	1 1/4	-	-	4	251450	262.95	1.5031 - 1.5660	317.60	290.25	281.10	276.60	272.05	268.35
1 3/4	1.6250	.489	7/16	8 1/8	1 1/4	-	-	4	251452	268.45	1.5661 - 1.6280	323.10	295.75	286.80	282.25	277.65	273.90
1 15/16	1.6875	.489	7/16	8 1/8	1 1/4	-	-	4	251454	321.25	1.6281 - 1.6910	380.05	350.65	340.80	335.90	331.00	326.90
1 3/4	1.7500	.489	7/16	8 1/8	1 1/4	-	-	4	251456	321.25	1.6911 - 1.7530	380.05	350.65	340.80	335.90	331.00	326.90
1 13/16	1.8125	.489	7/16	8 1/8	1 1/2	-	-	4	251458	380.25	1.7531 - 1.8160	439.15	409.75	399.95	395.15	390.00	386.05
1 7/8	1.8750	.489	7/16	8 1/8	1 1/2	-	-	4	251460	380.25	1.8161 - 1.8780	439.15	409.75	399.95	395.15	390.00	386.05
1 15/16	1.9375	.489	7/16	8 1/8	1 1/2	-	-	4	251462	415.55	1.8781 - 1.9410	474.55	445.10	435.25	430.30	425.40	421.35
2	2.0000	.551	1/2	8 3/8	1 1/2	-	-	4	251464	415.55	1.9411 - 2.0030	474.55	445.10	435.25	430.30	425.40	421.35

*Quantities of 15 or more: price of fractional size in same size range.



COUNTERBORES

CARBIDE TIPPED - TAPER SHANK - INTERCHANGEABLE PILOT TYPE



OPTIONS:

- Intermediate decimal or metric diameters.
- Chamfers or radius end.
- Cutting diameter ground down for small step.

TYPE 2518 - FOUR FLUTES - TAPER SHANK
TYPE 2516 - THREE/FOUR FLUTES - TAPER SHANK
BOTH TYPES:

For machining cast iron, non-ferrous materials, composites, plastics and non-metals.
 Right spiral polished flutes.
 Carbide tips brazed to hardened alloy steel bodies.
 Cutting diameter tolerance: plus .001", minus .000".
 Shank diameter tolerance: plus .0000", minus .0005".

TOOL DIAMETER		MORSE TAPER	MIN CUT DIAM.	PILOT HOLE DIAM.	OVER-ALL LENGTH	TYPE 2518		TYPE 2516		SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE						
FRAC.	DEC.					NO. OF FLTS	EDP NO.	NO. OF FLTS	EDP NO.		BOTH TYPES PRICE	1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
1/4	.2500	1	.114	3/32	3 13/16	-	-	3	251608	\$110.85	0.2381 - 0.2530	\$164.35	\$137.65	\$128.70	\$124.30	\$119.80	\$116.10
9/32	.2812	1	.114	3/32	3 13/16	-	-	3	251609	133.50	0.2531 - 0.2840	186.80	160.00	151.10	146.80	142.40	138.50
5/16	.3125	1	.114	3/32	3 13/16	-	-	3	251610	113.95	0.2841 - 0.3150	164.15	139.00	130.75	126.60	122.25	118.85
11/32	.3438	1	.114	3/32	3 13/16	-	-	3	251611	140.45	0.3151 - 0.3470	190.65	165.45	157.00	152.95	148.70	145.30
3/8	.3750	1	.182	5/32	4 1/16	-	-	3	251612	117.65	0.3471 - 0.3780	163.80	140.75	133.00	129.25	125.40	122.20
13/32	.4062	1	.182	5/32	4 1/16	-	-	3	251613	132.90	0.3781 - 0.4090	179.15	156.00	148.35	144.45	140.60	137.40
7/16	.4375	1	.182	5/32	4 1/16	-	-	3	251614	120.80	0.4091 - 0.4410	167.00	143.95	136.15	132.45	128.55	125.40
15/32	.4688	1	.228	3/16	4 3/16	-	-	3	251615	146.70	0.4411 - 0.4720	192.95	169.80	162.05	158.30	154.45	151.25
1/2	.5000	1	.228	3/16	4 3/16	4	251816	3	251616	133.35	0.4721 - 0.5030	179.75	156.55	148.70	145.10	141.05	137.90
17/32	.5312	1	.228	3/16	4 5/16	4	251817	3	251617	149.35	0.5031 - 0.5340	195.60	172.45	164.75	160.95	157.00	153.90
9/16	.5625	1	.228	3/16	4 3/16	4	251818	3	251618	135.85	0.5341 - 0.5660	182.10	158.95	151.35	147.40	143.60	140.45
19/32	.5938	2	.228	3/16	5 1/8	4	251819	3	251619	153.45	0.5661 - 0.5970	199.80	176.60	168.95	165.05	161.25	158.00
5/8	.6250	2	.228	3/16	5 1/8	4	251820	3	251620	139.50	0.5971 - 0.6280	185.65	162.65	154.90	151.20	147.10	144.00
21/32	.6562	2	.228	3/16	5 1/8	4	251821	3	251621	162.00	0.6281 - 0.6590	208.30	185.20	177.40	173.70	169.70	166.55
11/16	.6875	2	.228	3/16	5 3/8	4	251822	3	251622	147.10	0.6591 - 0.6910	193.55	170.25	162.65	158.80	154.90	151.70
23/32	.7188	2	.290	1/4	5 3/8	4	251823	3	251623	164.70	0.6911 - 0.7220	210.95	187.85	180.15	176.40	172.40	169.30
3/4	.7500	2	.290	1/4	5 3/8	4	251824	3	251624	149.75	0.7221 - 0.7530	195.90	172.85	165.05	161.35	157.35	154.05
25/32	.7812	2	.290	1/4	5 3/8	4	251825	3	251625	167.55	0.7531 - 0.7840	213.70	190.65	182.80	179.05	175.15	172.00
13/16	.8125	2	.290	1/4	5 3/8	4	251826	3	251626	152.25	0.7841 - 0.8160	198.50	175.40	167.75	163.80	160.00	156.80
27/32	.8438	2	.290	1/4	5 3/8	4	251827	3	251627	176.00	0.8161 - 0.8470	222.40	199.30	191.55	187.80	183.90	180.70
7/8	.8750	2	.290	1/4	5 3/8	4	251828	3	251628	160.10	0.8471 - 0.8780	206.35	183.20	175.60	171.65	167.80	164.60
29/32	.9062	3	.290	1/4	6 1/8	4	251829	3	251629	180.90	0.8781 - 0.9090	227.10	203.95	196.40	192.40	188.60	185.45
15/16	.9375	3	.290	1/4	6 1/8	4	251830	3	251630	164.40	0.9091 - 0.9410	210.70	187.55	179.85	175.95	172.25	169.00
31/32	.9688	3	.353	5/16	6 3/8	4	251831	3	251631	185.10	0.9411 - 0.9720	231.30	208.25	200.50	196.70	192.70	189.50
1	1.0000	3	.353	5/16	6 3/8	4	251832	3	251632	174.60	0.9721 - 1.0030	222.65	198.65	190.65	186.75	182.55	179.30
1 1/16	1.0625	3	.353	5/16	6 3/8	4	251834	3	251634	176.90	1.0031 - 1.0660	224.80	200.90	192.90	188.95	184.80	181.55
1 1/8	1.1250	3	.353	5/16	6 3/8	4	251836	3	251636	182.50	1.0661 - 1.1280	230.55	206.65	198.40	194.55	190.50	187.20
1 3/16	1.1875	3	.353	5/16	6 3/8	4	251838	3	251638	188.65	1.1281 - 1.1905	236.85	212.75	204.65	200.80	196.70	193.45
1 1/4	1.2500	3	.426	3/8	6 5/8	-	-	4	251640	209.80	1.1906 - 1.2530	261.80	235.80	227.10	222.90	218.50	214.85
1 5/16	1.3125	3	.426	3/8	6 5/8	-	-	4	251642	224.80	1.2531 - 1.3155	277.10	250.80	242.25	237.90	233.60	229.95
1 3/8	1.3750	3	.426	3/8	6 5/8	-	-	4	251644	235.65	1.3156 - 1.3780	287.65	261.65	252.95	248.60	244.40	240.70
1 7/16	1.4375	4	.426	3/8	7 7/8	-	-	4	251646	262.15	1.3781 - 1.4405	318.75	290.45	280.85	276.25	271.50	267.60
1 1/2	1.5000	4	.426	3/8	7 7/8	-	-	4	251648	290.55	1.4406 - 1.5030	347.20	318.95	309.50	304.80	300.10	296.20
1 9/16	1.5625	4	.489	7/16	8 1/8	-	-	4	251650	312.20	1.5031 - 1.5660	371.55	341.95	332.10	327.15	322.20	318.15
1 5/8	1.6250	4	.489	7/16	8 1/8	-	-	4	251652	317.80	1.5661 - 1.6280	377.05	347.55	337.65	332.70	327.70	323.75
1 11/16	1.6875	4	.489	7/16	8 1/8	-	-	4	251654	380.25	1.6281 - 1.6910	444.35	412.40	401.75	396.45	390.95	386.60
1 3/4	1.7500	4	.489	7/16	8 1/8	-	-	4	251656	380.25	1.6911 - 1.7530	444.35	412.40	401.75	396.45	390.95	386.60
1 13/16	1.8125	4	.489	7/16	8 1/8	-	-	4	251658	450.10	1.7531 - 1.8160	514.10	482.15	471.45	466.15	460.70	456.25
1 7/8	1.8750	4	.489	7/16	8 1/8	-	-	4	251660	450.10	1.8161 - 1.8780	514.10	482.15	471.45	466.15	460.70	456.25
1 15/16	1.9375	4	.489	7/16	8 1/8	-	-	4	251662	491.75	1.8781 - 1.9410	555.90	523.85	513.05	507.85	502.50	498.05
2	2.0000	4	.551	1/2	8 3/8	-	-	4	251664	491.75	1.9411 - 2.0030	555.90	523.85	513.05	507.85	502.50	498.05

*Quantities of 15 or more: price of fractional size in same size range.



COUNTERBORES

CARBIDE TIPPED - STRAIGHT SHANK & TAPER SHANK - INTERCHANGEABLE PILOT TYPE FOR STEEL



OPTIONS:

Intermediate decimal or metric diameters.
 Short shank or undersize diameter or flat on shank.
 Chamfers or radius end.
 Cutting diameter ground down for small step.
 Tanged shanks.

TYPE 2510 - STRAIGHT SHANK FOR MACHINING STEEL

Carbide tips brazed to hardened alloy steel bodies.
 Right hand spiral polished flutes.
 Cutting diameter tolerance: plus .001" minus .000"
 Shank diameter tolerance: plus .0000" minus .0005"

USE:

The special steel cutting grade of carbide permits the heavy chip loads and speeds required for machining steel - appropriate primary and secondary relief angles.

TYPE 2511 - TAPER SHANK FOR MACHINING STEEL

Same as Type 2510 above but with taper shank.

TOOL DIAMETER		MIN CUT DIAM.	PILOT HOLE DIAM.	OVER-ALL LENGTH	SHANK DIAM.	NO. OF FLTS	TYPE 2510 STRAIGHT SHANK EDP NO.	TYPE 2511 TAPER SHANK EDP NO.	MORSE TAPER	BOTH TYPES PRICE	SPECIAL DECIMAL SIZE RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
FRAC.	DEC.											1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
1/4	.2500	.114	3/32	3 13/16	15/64	3	251008	251108	1	\$110.85	0.2381 - 0.2530	\$164.35	\$137.65	\$128.70	\$124.30	\$119.80	\$116.10
9/32	.2812	.114	3/32	3 13/16	17/64	3	251009	251109	1	133.50	0.2531 - 0.2840	186.80	160.00	151.10	146.80	142.40	138.50
5/16	.3125	.114	3/32	3 13/16	19/64	3	251010	251110	1	113.95	0.2841 - 0.3150	164.15	139.00	130.75	126.60	122.25	118.85
11/32	.3438	.114	3/32	3 13/16	5/16	3	251011	251111	1	140.45	0.3151 - 0.3470	190.65	165.45	157.00	152.95	148.70	145.30
3/8	.3750	.182	5/32	4 1/16	5/16	3	251012	251112	1	117.65	0.3471 - 0.3780	163.80	140.75	133.00	129.25	125.40	122.20
13/32	.4062	.182	5/32	4 1/16	3/8	3	251013	251113	1	132.90	0.3781 - 0.4090	179.15	156.00	148.35	144.45	140.60	137.40
7/16	.4375	.182	5/32	4 1/16	3/8	3	251014	251114	1	120.80	0.4091 - 0.4410	167.00	143.95	136.15	132.45	128.55	125.40
15/32	.4688	.228	3/16	4 5/16	7/16	3	251015	251115	1	146.70	0.4411 - 0.4720	192.95	169.80	162.05	158.30	154.45	151.25
1/2	.5000	.228	3/16	4 5/16	7/16	3	251016	251116	1	133.35	0.4721 - 0.5030	179.75	156.55	148.70	145.10	141.05	137.90
17/32	.5312	.228	3/16	4 5/16	1/2	3	251017	251117	1	144.00	0.5031 - 0.5340	188.55	166.30	158.85	155.20	151.40	148.35
9/16	.5625	.228	3/16	4 5/16	1/2	3	251018	251118	1	130.90	0.5341 - 0.5660	175.60	153.15	145.80	141.95	138.35	135.25
19/32	.5938	.228	3/16	5 1/8	1/2	3	251019	251119	2	147.90	0.5661 - 0.5970	192.45	170.20	162.75	159.05	155.40	152.20
5/8	.6250	.228	3/16	5 1/8	1/2	3	251020	251120	2	134.40	0.5971 - 0.6280	179.05	156.75	149.30	145.70	141.80	138.80
21/32	.6562	.228	3/16	5 1/8	1/2	3	251021	251121	2	156.10	0.6281 - 0.6590	200.70	178.40	170.95	167.25	163.50	160.55
11/16	.6875	.228	3/16	5 1/8	1/2	3	251022	251122	2	141.80	0.6591 - 0.6910	186.50	164.15	156.75	152.95	149.30	146.15
23/32	.7188	.290	1/4	5 3/8	1/2	3	251023	251123	2	158.70	0.6911 - 0.7220	203.35	181.05	173.65	169.95	166.20	163.15
3/4	.7500	.290	1/4	5 3/8	1/2	3	251024	251124	2	144.25	0.7221 - 0.7530	188.80	166.45	159.05	155.45	151.55	148.55
25/32	.7812	.290	1/4	5 3/8	5/8	3	251025	251125	2	161.40	0.7531 - 0.7840	205.95	183.75	176.25	172.45	168.80	165.75
13/16	.8125	.290	1/4	5 3/8	5/8	3	251026	251126	2	146.80	0.7841 - 0.8160	191.35	169.05	161.70	157.95	154.20	151.10
27/32	.8438	.290	1/4	5 3/8	3/4	3	251027	251127	2	169.65	0.8161 - 0.8470	214.40	192.05	184.60	180.90	177.25	174.10
7/8	.8750	.290	1/4	5 3/8	3/4	3	251028	251128	2	154.25	0.8471 - 0.8780	198.90	176.50	169.20	165.45	161.75	158.60
29/32	.9062	.290	1/4	6 1/8	3/4	3	251029	251129	3	174.30	0.8781 - 0.9090	218.85	196.55	189.20	185.45	181.75	178.70
15/16	.9375	.290	1/4	6 1/8	3/4	3	251030	251130	3	158.40	0.9091 - 0.9410	203.00	180.70	173.25	169.55	165.90	162.85
31/32	.9688	.353	5/16	6 3/8	3/4	3	251031	251131	3	178.30	0.9411 - 0.9720	222.90	200.60	193.15	189.50	185.60	182.65
1	1.0000	.353	5/16	6 3/8	3/4	3	251032	251132	3	168.25	0.9721 - 1.0030	214.60	191.45	183.75	179.90	175.85	172.85
1 1/16	1.0625	.353	5/16	6 3/8	3/4	3	251034	251134	3	170.50	1.0031 - 1.0660	216.65	193.55	185.80	182.00	178.10	175.00
1 1/8	1.1250	.353	5/16	6 3/8	1	3	251036	251136	3	175.80	1.0661 - 1.1280	222.20	199.05	191.30	187.45	183.50	180.40
1 3/16	1.1875	.353	5/16	6 3/8	1	3	251038	251138	3	181.80	1.1281 - 1.1905	228.25	205.05	197.25	193.50	189.50	186.40
1 1/4	1.2500	.426	3/8	6 5/8	1	4	251040	251140	3	202.20	1.1906 - 1.2530	252.30	227.15	218.85	214.80	210.50	207.05
1 5/16	1.3125	.426	3/8	6 5/8	1	4	251042	251142	3	216.65	1.2531 - 1.3155	266.95	241.80	233.50	229.25	225.15	221.65
1 3/8	1.3750	.426	3/8	6 5/8	1	4	251044	251144	3	227.05	1.3156 - 1.3780	277.20	252.10	243.80	239.65	235.35	231.90
1 7/16	1.4375	.426	3/8	7 7/8	1 1/4	4	251046	251146	4	252.50	1.3781 - 1.4405	307.20	279.95	270.70	266.30	261.65	257.85
1 1/2	1.5000	.426	3/8	7 7/8	1 1/4	4	251048	251148	4	290.55	1.4406 - 1.5030	347.20	318.95	309.50	304.80	300.10	296.20
1 9/16	1.5625	.489	7/16	8 1/8	1 1/4	4	251050	251150	4	312.20	1.5031 - 1.5660	371.55	341.95	332.10	327.15	322.20	318.15
1 5/8	1.6250	.489	7/16	8 1/8	1 1/4	4	251052	251152	4	317.80	1.5661 - 1.6280	377.05	347.55	337.65	332.70	327.70	323.75
1 11/16	1.6875	.489	7/16	8 1/8	1 1/4	4	251054	251154	4	380.25	1.6281 - 1.6910	444.35	412.40	401.75	396.45	390.95	386.60
1 3/4	1.7500	.489	7/16	8 1/8	1 1/4	4	251056	251156	4	380.25	1.6911 - 1.7530	444.35	412.40	401.75	396.45	390.95	386.60
1 13/16	1.8125	.489	7/16	8 1/8	1 1/2	4	251058	251158	4	450.10	1.7531 - 1.8160	514.10	482.15	471.45	466.15	460.70	456.25
1 7/8	1.8750	.489	7/16	8 1/8	1 1/2	4	251060	251160	4	450.10	1.8161 - 1.8780	514.10	482.15	471.45	466.15	460.70	456.25
1 15/16	1.9375	.489	7/16	8 1/8	1 1/2	4	251062	251162	4	491.75	1.8781 - 1.9410	555.90	523.85	513.05	507.85	502.50	498.05
2	2.0000	.551	1/2	8 3/8	1 1/2	4	251064	251164	4	491.75	1.9411 - 2.0030	555.90	523.85	513.05	507.85	502.50	498.05

*Quantities of 15 or more: price of fractional size in same size range.



SHELL END MILLS END MILLS FOR STEELS CARBIDE TIPPED

SHELL END MILLS

TYPE 2530 - FOR NON-FERROUS MACHINING

For production machining of most non-ferrous materials. Large open flutes for easy chip disposal. Right hand spiral.

TYPE 2531 - FOR CAST IRON MACHINING

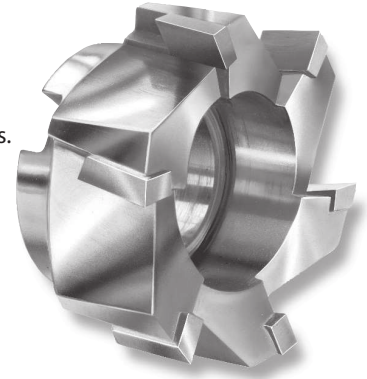
For production machining of cast iron and malleable iron. Open flutes for easy chip disposal.

TYPE 2532 - FOR STEEL MACHINING

For production machining of steel. Steel cutting grade of carbide permits high chip loads. Left-hand spiral absorbs the impact shock on entering steel.

OPTIONS:

Intermediate decimal cutting diameter.
Cutting diameter steps.
Radius corners.
Chamfer corners.



ALL TYPES:

Carbide tips brazed to alloy steel bodies.
Cutting diameter tolerance plus 1/16" minus .000".
Arbor hole tolerance plus .001" minus .000".

TOOL DIAM.	ARBOR HOLE	OVERALL LENGTH	DRIVE SLOTS		TYPE 2530 FOR NON-FERROUS			TYPE 2531 FOR CAST IRON			TYPE 2532 FOR STEEL		
			WIDTH	DEPTH	NO. OF TEETH	EDP NO.	PRICE	NO. OF TEETH	EDP NO.	PRICE	NO. OF TEETH	EDP NO.	PRICE
1 1/4	1/2	1	1/4	5/32	4	253024	\$240.00	4	253124	\$240.00	4	253224	\$249.65
1 1/2	1/2	1 1/8	1/4	5/32	4	253026	249.95	4	253126	249.95	4	253226	259.90
1 3/4	3/4	1 1/4	5/16	3/16	4	253028	311.40	4	253128	311.40	4	253228	323.80
2	3/4	1 3/8	5/16	3/16	4	253032	327.00	4	253132	348.00	4	253232	361.85
2 1/4	1	1 1/2	3/8	7/32	6	253036	345.45	6	253136	376.75	6	253236	391.80
2 1/2	1	1 5/8	3/8	7/32	6	253040	363.75	6	253140	410.60	6	253240	410.60
2 3/4	1	1 3/4	3/8	7/32	6	253044	383.85	6	253144	430.75	6	253244	430.75
3	1 1/4	1 3/4	1/2	9/32	6	253048	420.75	6	253148	468.50	6	253248	468.50
3 1/2	1 1/4	1 7/8	1/2	9/32	6	253056	515.10	8	253156	550.95	6	253256	582.45
4	1 1/2	2 1/4	5/8	3/8	6	253064	647.25	8	253164	681.65	6	253264	723.50

END MILLS FOR STEELS



TYPE 2350 - 15° RIGHT SPIRAL FLUTES

For milling all types of steel. The right spiral flutes permit fast chip removal and reduces cutting pressures. The constant spiral flutes distributes the impact load more evenly throughout the tool revolution and thus improves tool life while permitting faster cutting with smoother finishes.

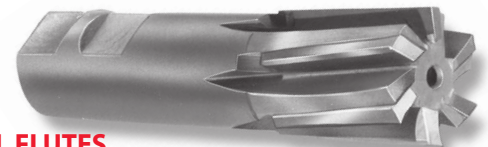
TOOL DIAM.	SHANK DIAMETER	LENGTH		TYPE 2350 15° RIGHT SPIRAL		
		CARBIDE	OVERALL	NO. OF FLUTES	EDP NO.	PRICE
3/4	5/8	1 1/4	3 3/8	4	235025	165.50
13/16	5/8	1 1/2	3 5/8	4	235026	178.60
7/8	5/8	1 1/2	3 5/8	4	235028	189.50
15/16	7/8	1 1/2	3 3/4	4	235031	280.75
1	1	1 1/2	4	6	235033	265.85
1 1/8	1	1 3/4	4 1/4	6	235036	312.85
1 1/4	1	1 3/4	4 1/4	6	235040	358.55
1 1/2	1 1/4	2	4 1/2	6	235048	412.60
1 3/4	1 1/4	2	4 1/2	8	235056	586.70
2	1 1/4	2	4 1/2	8	235064	662.60

ALL TYPES:

Steel cutting grade flute long carbide tips brazed to hardened alloy steel bodies.
Cutting diameter NC tolerance plus .002" minus .000".
Straight shanks with drive flats.

USE:

For milling steels and tough steel alloys as indicated. Special steel cutting grade of carbide permits the higher chip loads and higher speeds required for milling steel.



TYPE 2308 - 6° RIGHT SPIRAL FLUTES

The right spiral flutes greater capacity to remove chips permits heavier feeds and faster speeds, especially when machining free-cutting steels.

TOOL DIAM.	SHANK DIAMETER	LENGTH		TYPE 2308 RIGHT SPIRAL		
		CARBIDE	OVERALL	NUMBER OF FLUTES	EDP NO.	PRICE
1	7/8	1 1/4	4	6	230832	\$209.85
1 1/8	1	1 1/4	4 1/4	6	230836	222.55
1 1/4	1	1 1/4	4 1/4	6	230840	269.00
1 1/2	1 1/4	1 1/2	4 1/2	6	230848	327.15



END MILLS

CARBIDE TIPPED FOR MILLING CAST IRON, NON-FERROUS METALS, NON-METALS

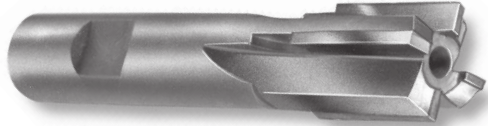
TYPE 2302 - TWO STRAIGHT FLUTES

Maximum chip room for easier chip removal. Also used when machine horsepower is too low for higher capacity end mills.



TYPE 2304 - STRAIGHT FLUTES

Where the machine horsepower permits a higher capacity end mill - feeds less than .002" per flute per revolution may result in fast dulling of cutting edges.



TYPE 2306 - 6° RIGHT SPIRAL FLUTES

The spiral flutes capacity to remove chips permits heavier feeds and faster speeds, especially on free cutting zinc and aluminum.



ALL TYPES:

Flute long carbide tips brazed to hardened alloy steel bodies.

Cutting diameter NC tolerance plus .002" minus .000".

Straight shanks with drive flats.

USE:

For milling cast iron, non-ferrous metals and non-metals but excluding steel.

TOOL DIAM.	SHANK DIAMETER	LENGTH		TYPE 2302 TWO FLUTES			TYPE 2304 FOUR FLUTES			TYPE 2306 RIGHT SPIRAL		
		CARBIDE	OVERALL	NUMBER OF FLUTES	EDP NO.	PRICE	NUMBER OF FLUTES	EDP NO.	PRICE	NUMBER OF FLUTES	EDP NO.	PRICE
1/2	1/2	1	3 1/4	2	230216	80.30	4	230416	81.85	2	230616	81.90
5/8	1/2	1	3 3/8	2	230220	88.75	4	230420	96.20	4	230620	94.15
3/4	5/8	1	3 5/8	2	230224	99.70	4	230424	99.05	4	230624	107.65
7/8	5/8	1 1/4	4	2	230228	121.25	4	230428	117.00	4	230628	143.90
1 1/16	7/8	1 1/4	4	2	230230	129.90	4	230430	130.00	-	-	-
1	7/8	1 1/4	4	2	230232	130.20	4	230432	135.20	4	230632	166.20
1 1/8	1	1 1/4	4 1/4	-	-	-	4	230436	153.30	-	-	-
1 1/4	1	1 1/4	4 1/4	2	230240	161.15	4	230440	172.40	4	230640	211.90
1 1/2	1 1/4	1 1/2	4 1/2	2	230248	199.55	4	230448	222.30	4	230648	262.25
1 3/4	1 1/4	1 1/2	4 1/2	-	-	-	6	230456	286.50	-	-	-
2	1 1/4	1 1/2	4 1/2	-	-	-	6	230464	330.10	-	-	-

TOOL DIAM.	SHANK DIAMETER	LENGTH		TYPE 2375 15° RIGHT SPIRAL		
		CARBIDE	OVERALL	NUMBER OF FLUTES	EDP NO.	PRICE
1/2	3/8	1	3	2	237516	\$118.55
1/2	1/2	1	3	2	237517	118.55
9/16	1/2	1	3	2	237518	127.45
5/8	1/2	1 1/4	3 1/4	2	237520	137.00
5/8	5/8	1 1/4	3 3/8	2	237521	137.00
11/16	1/2	1 1/4	3 1/4	2	237522	142.85
11/16	5/8	1 1/4	3 3/8	2	237523	142.85
3/4	1/2	1 1/4	3 1/4	2	237524	152.50
3/4	5/8	1 1/4	3 3/8	2	237525	152.50
13/16	5/8	1 1/2	3 5/8	2	237526	164.60
7/8	5/8	1 1/2	3 5/8	2	237528	174.70
7/8	7/8	1 1/2	3 3/4	2	237529	174.70
15/16	5/8	1 1/2	3 3/4	3	237530	258.70
15/16	7/8	1 1/2	3 3/4	3	237531	258.70
1	7/8	1 1/2	3 3/4	3	237532	244.85
1	1	1 1/2	4	3	237533	244.85
1 1/8	1	1 3/4	4 1/4	3	237536	288.35
1 1/4	1	1 3/4	4 1/4	4	237540	330.45
1 3/8	1	1 3/4	4 1/4	4	237544	385.90
1 1/2	1 1/4	2	4 1/2	4	237548	380.25
1 5/8	1 1/4	2	4 1/2	4	237552	465.05
1 3/4	1 1/4	2	4 1/2	4	237556	495.95
1 7/8	1 1/4	2	4 1/2	4	237560	530.45
2	1 1/4	2	4 1/2	8	237564	560.30



TYPE 2375 - 15° RIGHT SPIRAL FLUTES

For milling cast iron and malleable iron. The 15° spiral flutes permit fast chip removal so maximum feeds and speeds can be used. The constant spiral flute distributes the impact load more evenly throughout the tool's revolution and thus improves tool life while permitting faster cutting with smoother finishes.

OPTIONS:

Intermediate decimal cutting diameters.

Radius end.

End chamfer.

Undersize shank diameter.

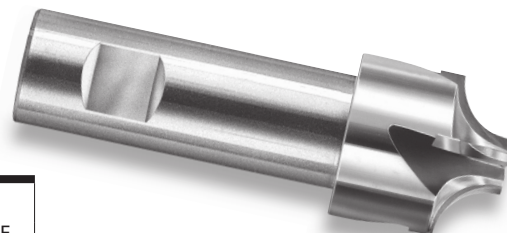


CORNER ROUNDING END MILLS CENTER CUTTING END MILLS CARBIDE TIPPED

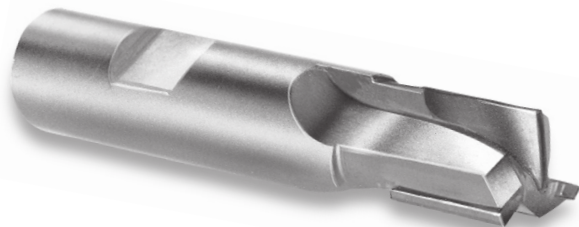
TYPE 2740 - CORNER ROUNDING END MILLS FOR NON-FERROUS AND CAST IRON

TYPE 2741 - CORNER ROUNDING END MILLS FOR STEEL

All sizes have three flutes and are used to mill round corners on square edges.



CIRCLE RADIUS	TOOL DIAM.	END DIAM.	SHANK DIAM.	LENGTH		TYPE 2740 CAST IRON EDP NO.	PRICE	TYPE 2741 STEEL EDP NO.	PRICE
				CARBIDE	OVERALL				
1/16	7/16	17/64	3/8	13/32	2 3/4	274002	\$155.95	274102	\$168.50
3/32	1/2	17/64	3/8	13/32	2 3/4	274003	155.95	274103	168.50
1/8	5/8	19/64	1/2	13/32	3	274004	161.45	274104	174.25
5/32	3/4	23/64	1/2	13/32	3	274005	171.25	274105	184.90
3/16	7/8	13/32	3/4	13/32	3 1/4	274006	181.15	274106	195.60
1/4	1	13/32	3/4	15/32	3 1/4	274008	206.45	274108	222.95
5/16	1 1/8	13/32	7/8	19/32	3 1/2	274010	212.10	274110	229.05
3/8	1 1/4	13/32	7/8	25/32	3 3/4	274012	220.30	274112	238.00
7/16	1 3/8	13/32	1	7/8	4	274014	245.40	274114	265.05
1/2	1 1/2	13/32	1	1	4	274016	273.05	274116	295.05
5/8	2	21/32	1 1/4	1 7/32	4 1/4	274020	336.05	274120	363.00



TYPE 2312 FOR MILLING STEEL

Three straight flutes.
One flute is center cutting.
Steel cutting grade carbide.

TYPE 2314 FOR MILLING CAST IRON

Three straight flutes.
One flute is center cutting.
General purpose carbide.

TYPE 2318 FOR MILLING NON-FERROUS MATERIALS

Two 25° right spiral shear cutting flutes.
One flute is center cutting. Large flute capacity for heavy milling of non-ferrous material.

ALL TYPES:

Carbide tips brazed to hardened alloy steel bodies.
Cutting diameter NC tolerance plus .002" minus .000".

USE:

For plunge and side cut milling at moderate feeds and speeds. Extremely versatile and economical for machining splines, keyways, spot facing or regular peripheral milling.

OPTIONS:

Radius end.
End chamfer.

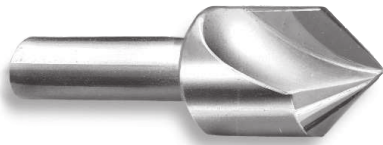
TOOL DIAM.	SHANK DIAM.	NUMBER OF FLUTES	LENGTH		TYPE 2312 EDP NO.	TYPE 2314 EDP NO.	BOTH TYPES PRICE
			CARBIDE	OVERALL			
3/8	3/8	3	1/2	2 1/2	231212	231412	\$134.50
7/16	3/8	3	3/4	2 1/2	231214	231414	137.55
1/2	1/2	3	3/4	3	231216	231416	140.95
5/16	1/2	3	3/4	3	231218	231418	146.50
5/8	5/8	3	3/4	3 1/4	231220	231420	171.30
3/4	5/8	3	3/4	3 3/8	231224	231424	179.40
7/8	7/8	3	3/4	3 3/4	231228	231428	209.40
1	7/8	3	3/4	3 3/4	231232	231432	230.05
1 1/8	1	3	3/4	4	231236	231436	246.25
1 1/4	1	3	3/4	4	231240	231440	285.60
1 1/2	1 1/4	3	3/4	4	231248	231448	339.45

TOOL DIAM.	SHANK DIAM.	NUMBER OF FLUTES	LENGTH		TYPE 2318 - RIGHT SPIRAL	
			CARBIDE	OVERALL	EDP NO.	PRICE
1/2	1/2	2	1	3	231816	\$216.50
5/8	5/8	2	1 1/4	3 3/8	231820	241.95
3/4	3/4	2	1 1/4	3 3/8	231824	256.40
7/8	7/8	2	1 1/2	3 3/4	231828	282.00
1	1	2	1 1/2	4	231832	324.00
1 1/4	1 1/4	2	1 3/4	4 1/4	231840	440.45
1 1/2	1 1/2	2	2	4 3/4	231848	513.95



SPIRAL FLUTE COUNTERSINKS & DOUBLE ANGLE CUTTERS

CARBIDE TIPPED



SINGLE FLUTE TYPES:

The single flute design with a positive rake assures burr-free holes.
Right spiral flute.
Carbide tips brazed to alloy steel bodies.
Not recommended for portable tool use - see three flute types.

- TYPE 2561 - 60° SINGLE FLUTE COUNTERSINKS**
- TYPE 2581 - 82° SINGLE FLUTE COUNTERSINKS**
- TYPE 2591 - 90° SINGLE FLUTE COUNTERSINKS**
- TYPE 2584 - 100° SINGLE FLUTE COUNTERSINKS**

THREE FLUTE TYPES:

The three flute design tends to center the tool in portable use and results in longer tool life.
Right spiral flutes.
Carbide tips brazed to alloy steel bodies.

- TYPE 2563 - 60° THREE FLUTE COUNTERSINKS**
- TYPE 2583 - 82° THREE FLUTE COUNTERSINKS**
- TYPE 2590 - 90° THREE FLUTE COUNTERSINKS**
- TYPE 2585 - 100° THREE FLUTE COUNTERSINKS**

TOOL DIAM.	SHANK DIAM.	MIN. CUTTING DIAM.	EDP NO.				PRICE ALL TYPES
			TYPE 2561 60° ANGLE	TYPE 2581 82° ANGLE	TYPE 2591 90° ANGLE	TYPE 2584 100° ANGLE	
1/4	3/16	1/16	256108	258108	259108	258408	\$79.10
3/8	1/4	5/64	256112	258112	259112	258412	79.10
1/2	3/8	3/32	256116	258116	259116	258416	93.95
3/4	1/2	1/8	256124	258124	259124	258424	117.50
1	1/2	1/8	256132	258132	259132	258432	153.45
1 1/4	1/2	5/32	256140	258140	259140	258440	195.30
1 1/2	1/2	3/16	256148	258148	259148	258448	218.95

TOOL DIAM.	SHANK DIAM.	MIN. CUTTING DIAM.	EDP NO.				PRICE ALL TYPES
			TYPE 2563 60° ANGLE	TYPE 2583 82° ANGLE	TYPE 2590 90° ANGLE	TYPE 2585 100° ANGLE	
1/4	3/16	5/64	256308	258308	259008	258508	\$87.05
3/8	1/4	7/64	256312	258312	259012	258512	87.05
1/2	3/8	9/64	256316	258316	259016	258516	103.35
3/8	3/8	9/64	256320	258320	259020	258520	108.75
3/4	1/2	3/16	256324	258324	259024	258524	130.75
7/8	1/2	3/16	256328	258328	259028	258528	149.85
1	1/2	1/4	256332	258332	259032	258532	163.45
1 1/4	1/2	5/16	256340	258340	259040	258540	203.30
1 1/2	1/2	3/8	256348	258348	259048	258548	237.10

DOUBLE ANGLE CUTTERS

- TYPE 2746 - 60° - FOR NON-FERROUS & CAST IRON**
- TYPE 2747 - 60° - FOR STEEL**

- TYPE 2748 - 90° - FOR NON-FERROUS & CAST IRON**
- TYPE 2749 - 90° - FOR STEEL**

Carbide tips brazed to hardened alloy steel bodies. Right hand cut. Straight shank with Weldon flats.

ALL TYPES:

Angle tolerance: +/- 1/4°.
Tool diameter tolerance: plus .015", minus .000"; Corner radius: .010" - .020".



TOOL DIAM.	SHANK DIAM.	NO. OF TEETH	60° INCLUDED ANGLE				90° INCLUDED ANGLE							
			OVERALL LENGTH	CUTTER WIDTH	TYPE 2746 EDP NO.	PRICE	TYPE 2747 EDP NO.	PRICE	OVERALL LENGTH	CUTTER WIDTH	TYPE 2748 EDP NO.	PRICE	TYPE 2749 EDP NO.	PRICE
3/4	3/8	6	2 3/8	3/16	274624	\$197.35	274724	\$217.15	2 3/8	1/4	274824	\$197.35	274924	\$217.15
1	1/2	6	2 27/32	5/16	274632	233.05	274732	256.45	2 29/32	3/8	274832	233.05	274932	256.45
1 3/8	5/8	6	3 7/32	7/16	274644	269.95	274744	297.05	3 9/32	1/2	274844	269.95	274944	297.05
1 1/2	3/4	6	3 3/8	1/2	274648	283.60	274748	311.90	3 7/16	9/16	274848	283.60	274948	311.90
1 7/8	3/4	6	3 25/32	5/8	274660	430.60	274760	473.70	3 25/32	5/8	274860	430.60	274960	473.70
2 1/4	7/8	6	4 5/32	3/4	274672	582.85	274772	641.10	4 5/32	3/4	274872	582.85	274972	641.10



KEYSEAT CUTTERS

CARBIDE TIPPED - STRAIGHT TOOTH FOR NON-FERROUS & CAST IRON

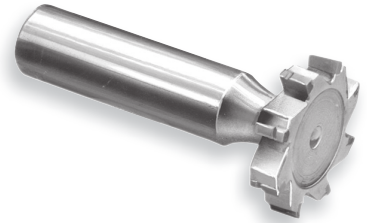
TYPE 2700 - STRAIGHT TOOTH FOR NON-FERROUS & CAST IRON

Fast cutting to close tolerances with longer tool life. Carbide tips brazed to hardened alloy steel bodies. Cutting diameter tolerance: plus .020", plus .015". Face width tolerance: plus .0000" minus .0005". Straight shank - 1/2" diameter, 2" long. Chip breakers on cutters 5/32" and greater in width. Decimal sized cutters DO NOT have chip breakers.

OPTIONS: Intermediate decimal & metric face width.

Intermediate decimal & metric cutting diameter. Drive flats on shanks. Radius corners or chamfer corners.

USE: For milling slots in cast iron, non-ferrous metals, plastic and non-metals.



AMERICAN STANDARD NO.	TOOL DIAM.	DIMENSIONS				TYPE 2700 EDP NO.	PRICE	MODIFIED FACE WIDTH RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
		FACE WIDTH	NECK DIAM.	OVERALL LENGTH	NO. OF TEETH				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
204	1/2	1/16	.130	2 1/16	6	27000204	\$115.05	.0575 - .0787	\$155.00	\$137.75	\$132.05	\$129.30	\$126.40	\$123.95
304	1/2	3/32	.160	2 3/32	6	27000304	115.05	.0788 - .1088	155.00	137.75	132.05	129.30	126.40	123.95
404	1/2	1/8	.191	2 1/8	6	27000404	115.05	.1089 - .1400	155.00	137.75	132.05	129.30	126.40	123.95
305	5/8	3/32	.191	2 3/32	6	27000305	119.25	.0788 - .1088	159.30	142.10	136.30	133.45	130.60	128.25
405	5/8	1/8	.223	2 1/8	6	27000405	119.25	.1089 - .1400	159.30	142.10	136.30	133.45	130.60	128.25
505	5/8	3/32	.252	2 1/32	6	27000505	119.25	.1401 - .1713	159.30	142.10	136.30	133.45	130.60	128.25
605	5/8	3/16	.279	2 3/16	6	27000605	119.25	.1714 - .2025	159.30	142.10	136.30	133.45	130.60	128.25
406	3/4	1/8	.217	2 1/8	6	27000406	124.45	.1100 - .1400	164.80	147.55	141.75	139.05	136.10	133.70
506	3/4	5/32	.246	2 5/32	6	27000506	124.45	.1401 - .1713	164.80	147.55	141.75	139.05	136.10	133.70
606	3/4	3/16	.279	2 3/16	6	27000606	124.45	.1714 - .2025	164.80	147.55	141.75	139.05	136.10	133.70
-	3/4	7/32	.342	2 7/32	6	27002407	141.65	.2026 - .2339	171.25	153.35	147.30	144.50	141.45	138.95
806	3/4	1/4	.342	2 1/4	6	27000806	124.45	.2340 - .2650	164.80	147.55	141.75	139.05	136.10	133.70
507	7/8	5/32	.246	2 5/32	6	27000507	130.30	.1401 - .1713	170.90	153.70	147.90	145.25	142.30	139.85
607	7/8	3/16	.279	2 3/16	6	27000607	130.30	.1714 - .2025	170.90	153.70	147.90	145.25	142.30	139.85
707	7/8	7/32	.312	2 7/32	6	27000707	130.30	.2026 - .2339	170.90	153.70	147.90	145.25	142.30	139.85
807	7/8	1/4	.342	2 1/4	6	27000807	130.30	.2340 - .2650	170.90	153.70	147.90	145.25	142.30	139.85
608	1	3/16	.279	2 3/16	8	27000608	147.10	.1714 - .2025	188.45	171.25	165.35	162.65	159.75	157.40
708	1	7/32	.312	2 7/32	8	27000708	147.10	.2026 - .2339	188.45	171.25	165.35	162.65	159.75	157.40
808	1	1/4	.342	2 1/4	8	27000808	147.10	.2340 - .2650	188.45	171.25	165.35	162.65	159.75	157.40
-	1	9/32	.401	2 9/32	8	27003209	167.35	.2651 - .2968	195.85	177.95	171.85	169.00	166.00	163.55
1008	1	5/16	.401	2 5/16	8	27001008	147.10	.2969 - .3281	188.45	171.25	165.35	162.65	159.75	157.40
-	1	11/32	.467	2 11/32	8	27003211	167.35	.3282 - .3593	195.85	177.95	171.85	169.00	166.00	163.55
1208	1	3/8	.467	2 3/8	8	27001208	147.10	.3594 - .3900	188.45	171.25	165.35	162.65	159.75	157.40
609	1 1/8	3/16	.312	2 3/16	8	27000609	154.40	.1714 - .2025	196.15	179.00	173.20	170.45	167.50	165.15
709	1 1/8	7/32	.342	2 7/32	8	27000709	154.40	.2026 - .2339	196.15	179.00	173.20	170.45	167.50	165.15
809	1 1/8	1/4	.374	2 1/4	8	27000809	154.40	.2340 - .2650	196.15	179.00	173.20	170.45	167.50	165.15
-	1 1/8	9/32	.435	2 9/32	8	27003609	175.80	.2651 - .2968	203.85	186.05	180.00	177.15	174.05	171.60
1009	1 1/8	5/16	.435	2 5/16	8	27001009	154.40	.2969 - .3281	196.15	179.00	173.20	170.45	167.50	165.15
610	1 1/4	3/16	.312	2 3/16	8	27000610	162.10	.1714 - .2025	204.25	187.10	181.30	178.50	175.60	173.20
710	1 1/4	7/32	.342	2 7/32	8	27000710	162.10	.2026 - .2339	204.25	187.10	181.30	178.50	175.60	173.20
810	1 1/4	1/4	.374	2 1/4	8	27000810	162.10	.2340 - .2650	204.25	187.10	181.30	178.50	175.60	173.20
-	1 1/4	9/32	.435	2 9/32	8	27004009	184.55	.2651 - .2968	212.25	194.45	188.40	185.50	182.50	180.00
1010	1 1/4	5/16	.435	2 5/16	8	27001010	162.10	.2969 - .3281	204.25	187.10	181.30	178.50	175.60	173.20
-	1 1/4	11/32	.467	2 11/32	8	27004011	184.55	.3282 - .3593	212.25	194.45	188.40	185.50	182.50	180.00
1210	1 1/4	3/8	.467	2 3/8	8	27001210	162.10	.3594 - .3900	204.25	187.10	181.30	178.50	175.60	173.20
811	1 3/8	1/4	.401	2 1/4	8	27000811	170.35	.2340 - .2650	212.80	195.65	189.85	187.10	184.10	181.80
-	1 3/8	9/32	.467	2 9/32	8	27004409	193.85	.2651 - .2968	221.15	203.30	197.30	194.45	191.35	188.95
1011	1 3/8	5/16	.467	2 5/16	8	27001011	170.35	.2969 - .3281	212.80	195.65	189.85	187.10	184.10	181.80
-	1 3/8	11/32	.467	2 11/32	8	27004411	193.85	.3282 - .3593	221.15	203.30	197.30	194.45	191.35	188.95
1211	1 3/8	3/8	.467	2 3/8	8	27001211	170.35	.3594 - .3900	212.80	195.65	189.85	187.10	184.10	181.80
812	1 1/2	1/4	.435	2 1/4	8	27000812	178.85	.2340 - .2650	221.70	204.55	198.80	196.05	193.05	190.75
-	1 1/2	9/32	.467	2 9/32	8	27004809	203.65	.2651 - .2968	230.40	212.60	206.60	203.75	200.60	198.20
1012	1 1/2	5/16	.467	2 5/16	8	27001012	178.85	.2969 - .3281	221.70	204.55	198.80	196.05	193.05	190.75
-	1 1/2	11/32	.467	2 11/32	8	27004811	203.65	.3282 - .3593	230.40	212.60	206.60	203.75	200.60	198.20
1212	1 1/2	3/8	.467	2 3/8	8	27001212	178.85	.3594 - .3900	221.70	204.55	198.80	196.05	193.05	190.75
-	1 1/2	13/32	.467	2 13/32	8	27004813	203.65	.3901 - .4219	230.40	212.60	206.60	203.75	200.60	198.20
-	1 1/2	7/16	.467	2 7/16	8	27004814	203.65	.4220 - .4531	230.40	212.60	206.60	203.75	200.60	198.20
-	1 1/2	15/32	.467	2 15/32	8	27004815	203.65	.4532 - .4843	230.40	212.60	206.60	203.75	200.60	198.20
-	1 1/2	1/2	.467	2 1/2	8	27004816	203.65	.4844 - .5150	230.40	212.60	206.60	203.75	200.60	198.20

*Quantities of 15 or more: price of fractional size in same size range.



KEYSEAT CUTTERS

CARBIDE TIPPED - STAGGERED TOOTH FOR NON-FERROUS & CAST IRON

TYPE 2701 - STAGGERED TOOTH FOR NON-FERROUS & CAST IRON

Alternate right and left axial rake.

Fast cutting to close tolerances with longer tool life.

Carbide tips brazed to hardened alloy steel bodies.

Cutting diameter tolerance: plus .020", plus .015".

Face width tolerance: plus .0000" minus .0005".

Straight shank - 1/2" diameter, 2" long.

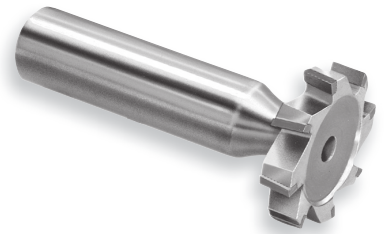
OPTIONS: Intermediate decimal & metric face width.

Intermediate decimal & metric cutting diameter.

Drive flats on shanks.

Radius corners or chamfer corners.

USE: For milling slots in cast iron, non-ferrous metals, plastic and non-metals.



AMERICAN STANDARD NO.	TOOL DIAM.	DIMENSIONS				TYPE 2701 EDP NO.	PRICE	MODIFIED FACE WIDTH RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
		FACE WIDTH	NECK DIAM.	OVERALL LENGTH	NO. OF TEETH				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
204	1/2	1/16	.130	2 1/16	6	27010204	\$135.40	.0575 - .0787	\$176.25	\$159.05	\$153.25	\$150.55	\$147.55	\$145.25
304	1/2	3/32	.160	2 3/32	6	27010304	135.40	.0788 - .1088	176.25	159.05	153.25	150.55	147.55	145.25
404	1/2	1/8	.191	2 1/8	6	27010404	135.40	.1089 - .1400	176.25	159.05	153.25	150.55	147.55	145.25
305	5/8	3/32	.191	2 3/32	6	27010305	140.25	.0788 - .1088	181.35	164.15	158.35	155.55	152.65	150.30
405	5/8	1/8	.223	2 1/8	6	27010405	140.25	.1089 - .1400	181.35	164.15	158.35	155.55	152.65	150.30
505	5/8	3/32	.252	2 3/32	6	27010505	140.25	.1401 - .1713	181.35	164.15	158.35	155.55	152.65	150.30
605	5/8	3/16	.279	2 3/16	6	27010605	140.25	.1714 - .2025	181.35	164.15	158.35	155.55	152.65	150.30
406	3/4	1/8	.217	2 1/8	6	27010406	146.50	.1100 - .1400	187.95	170.75	164.95	162.10	159.25	156.95
506	3/4	5/32	.246	2 5/32	6	27010506	146.50	.1401 - .1713	187.95	170.75	164.95	162.10	159.25	156.95
606	3/4	3/16	.279	2 3/16	6	27010606	146.50	.1714 - .2025	187.95	170.75	164.95	162.10	159.25	156.95
-	3/4	7/32	.342	2 7/32	6	27012407	166.80	.2026 - .2339	195.30	177.45	171.40	168.45	165.50	163.10
806	3/4	1/4	.342	2 1/4	6	27010806	146.50	.2340 - .2650	187.95	170.75	164.95	162.10	159.25	156.95
507	7/8	5/32	.246	2 5/32	6	27010507	153.25	.1401 - .1713	194.90	177.70	171.95	169.15	166.20	163.90
607	7/8	3/16	.279	2 3/16	6	27010607	153.25	.1714 - .2025	194.90	177.70	171.95	169.15	166.20	163.90
707	7/8	7/32	.312	2 7/32	6	27010707	153.25	.2026 - .2339	194.90	177.70	171.95	169.15	166.20	163.90
807	7/8	1/4	.342	2 1/4	6	27010807	153.25	.2340 - .2650	194.90	177.70	171.95	169.15	166.20	163.90
608	1	3/16	.279	2 3/16	8	27010608	172.90	.1714 - .2025	215.60	198.30	192.60	189.75	186.80	184.55
708	1	7/32	.312	2 7/32	8	27010708	172.90	.2026 - .2339	215.60	198.30	192.60	189.75	186.80	184.55
808	1	1/4	.342	2 1/4	8	27010808	172.90	.2340 - .2650	215.60	198.30	192.60	189.75	186.80	184.55
-	1	9/32	.401	2 9/32	8	27013209	196.85	.2651 - .2968	224.05	206.05	200.15	197.20	194.15	191.80
1008	1	3/16	.401	2 3/16	8	27011008	172.90	.2969 - .3281	215.60	198.30	192.60	189.75	186.80	184.55
-	1	11/32	.467	2 11/32	8	27013211	196.85	.3282 - .3593	224.05	206.05	200.15	197.20	194.15	191.80
1208	1	3/8	.467	2 3/8	8	27011208	172.90	.3594 - .3900	215.60	198.30	192.60	189.75	186.80	184.55
609	1 1/8	3/16	.312	2 3/16	8	27010609	181.55	.1714 - .2025	224.55	207.30	201.55	198.80	195.95	193.50
709	1 1/8	7/32	.342	2 7/32	8	27010709	181.55	.2026 - .2339	224.55	207.30	201.55	198.80	195.95	193.50
809	1 1/8	1/4	.374	2 1/4	8	27010809	181.55	.2340 - .2650	224.55	207.30	201.55	198.80	195.95	193.50
-	1 1/8	9/32	.435	2 9/32	8	27013609	206.60	.2651 - .2968	233.35	215.45	209.45	206.60	203.65	201.10
1009	1 1/8	3/16	.435	2 3/16	8	27011009	181.55	.2969 - .3281	224.55	207.30	201.55	198.80	195.95	193.50
610	1 1/4	3/16	.312	2 3/16	8	27010610	190.70	.1714 - .2025	234.10	216.90	211.20	208.35	205.35	203.05
710	1 1/4	7/32	.342	2 7/32	8	27010710	190.70	.2026 - .2339	234.10	216.90	211.20	208.35	205.35	203.05
810	1 1/4	1/4	.374	2 1/4	8	27010810	190.70	.2340 - .2650	234.10	216.90	211.20	208.35	205.35	203.05
-	1 1/4	9/32	.435	2 9/32	8	27014009	217.00	.2651 - .2968	243.25	225.40	219.45	216.50	213.40	211.00
1010	1 1/4	3/16	.435	2 3/16	8	27011010	190.70	.2969 - .3281	234.10	216.90	211.20	208.35	205.35	203.05
-	1 1/4	11/32	.467	2 11/32	8	27014011	217.00	.3282 - .3593	243.25	225.40	219.45	216.50	213.40	211.00
1210	1 1/4	3/8	.467	2 3/8	8	27011210	190.70	.3594 - .3900	234.10	216.90	211.20	208.35	205.35	203.05
811	1 3/8	1/4	.401	2 1/4	8	27010811	200.30	.2340 - .2650	244.25	227.10	221.30	218.45	215.60	213.20
-	1 3/8	9/32	.467	2 9/32	8	27014409	228.00	.2651 - .2968	253.80	236.00	229.95	227.00	224.05	221.55
1011	1 3/8	3/16	.467	2 3/16	8	27011011	200.30	.2969 - .3281	244.25	227.10	221.30	218.45	215.60	213.20
-	1 3/8	11/32	.467	2 11/32	8	27014411	228.00	.3282 - .3593	253.80	236.00	229.95	227.00	224.05	221.55
1211	1 3/8	3/8	.467	2 3/8	8	27011211	200.30	.3594 - .3900	244.25	227.10	221.30	218.45	215.60	213.20
812	1 1/2	1/4	.435	2 1/4	8	27010812	210.40	.2340 - .2650	254.70	237.50	231.75	229.05	226.05	223.70
-	1 1/2	9/32	.467	2 9/32	8	27014809	239.45	.2651 - .2968	264.70	246.80	240.85	238.00	234.90	232.45
1012	1 1/2	3/16	.467	2 3/16	8	27011012	210.40	.2969 - .3281	254.70	237.50	231.75	229.05	226.05	223.70
-	1 1/2	11/32	.467	2 11/32	8	27014811	239.45	.3282 - .3593	264.70	246.80	240.85	238.00	234.90	232.45
1212	1 1/2	3/8	.467	2 3/8	8	27011212	210.40	.3594 - .3900	254.70	237.50	231.75	229.05	226.05	223.70
-	1 1/2	13/32	.467	2 13/32	8	27014813	239.45	.3901 - .4219	264.70	246.80	240.85	238.00	234.90	232.45
-	1 1/2	7/16	.467	2 7/16	8	27014814	239.45	.4220 - .4531	264.70	246.80	240.85	238.00	234.90	232.45
-	1 1/2	15/32	.467	2 15/32	8	27014815	239.45	.4532 - .4843	264.70	246.80	240.85	238.00	234.90	232.45
-	1 1/2	1/2	.467	2 1/2	8	27014816	239.45	.4844 - .5150	264.70	246.80	240.85	238.00	234.90	232.45

*Quantities of 15 or more: price of fractional size in same size range.



KEYSEAT CUTTERS

CARBIDE TIPPED - STRAIGHT TOOTH FOR STEEL

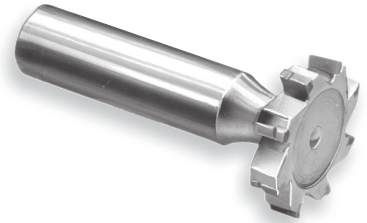
TYPE 2702 - STRAIGHT TOOTH FOR STEEL

Fast cutting to close tolerances with longer tool life.
Carbide tips brazed to hardened alloy steel bodies.
Cutting diameter tolerance: plus .020", plus .015".
Face width tolerance: plus .0000" minus .0005".
Straight shank - 1/2" diameter, 2" long.
Chip breakers on cutters 5/32" and greater in width.
Decimal sized cutters DO NOT have chip breakers.

OPTIONS: Intermediate decimal & metric face width.

Intermediate decimal & metric cutting diameter.
Drive flats on shanks.
Radius corners or chamfer corners.

USE: For milling slots in steel.



AMERICAN STANDARD NO.	TOOL DIAM.	DIMENSIONS				TYPE 2702 EDP NO.	PRICE	MODIFIED FACE WIDTH RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
		FACE WIDTH	NECK DIAM.	OVERALL LENGTH	NO. OF TEETH				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
204	1/2	1/16	.130	2 1/16	6	27020204	\$138.15	.0575 - .0787	\$182.30	\$163.55	\$157.20	\$154.25	\$151.00	\$148.40
304	1/2	3/32	.160	2 3/32	6	27020304	138.15	.0788 - .1088	182.30	163.55	157.20	154.25	151.00	148.40
404	1/2	1/8	.191	2 1/8	6	27020404	138.15	.1089 - .1400	182.30	163.55	157.20	154.25	151.00	148.40
305	5/8	3/32	.191	2 3/32	6	27020305	143.15	.0788 - .1088	187.40	168.65	162.40	159.30	156.20	153.60
405	5/8	1/8	.223	2 1/8	6	27020405	143.15	.1089 - .1400	187.40	168.65	162.40	159.30	156.20	153.60
505	5/8	3/32	.252	2 3/32	6	27020505	143.15	.1401 - .1713	187.40	168.65	162.40	159.30	156.20	153.60
605	5/8	3/16	.279	2 3/16	6	27020605	143.15	.1714 - .2025	187.40	168.65	162.40	159.30	156.20	153.60
406	3/4	1/8	.217	2 1/8	6	27020406	149.40	.1100 - .1400	194.10	175.30	168.95	165.90	162.70	160.15
506	3/4	5/32	.246	2 5/32	6	27020506	149.40	.1401 - .1713	194.10	175.30	168.95	165.90	162.70	160.15
606	3/4	3/16	.279	2 3/16	6	27020606	149.40	.1714 - .2025	194.10	175.30	168.95	165.90	162.70	160.15
-	3/4	7/32	.342	2 7/32	6	27022407	163.60	.2026 - .2339	194.10	175.30	168.95	165.90	162.70	160.15
806	3/4	1/4	.342	2 1/4	6	27020806	149.40	.2340 - .2650	194.10	175.30	168.95	165.90	162.70	160.15
507	7/8	5/32	.246	2 5/32	6	27020507	156.50	.1401 - .1713	201.45	182.65	176.30	173.25	170.15	167.50
607	7/8	3/16	.279	2 3/16	6	27020607	156.50	.1714 - .2025	201.45	182.65	176.30	173.25	170.15	167.50
707	7/8	7/32	.312	2 7/32	6	27020707	156.50	.2026 - .2339	201.45	182.65	176.30	173.25	170.15	167.50
807	7/8	1/4	.342	2 1/4	6	27020807	156.50	.2340 - .2650	201.45	182.65	176.30	173.25	170.15	167.50
608	1	3/16	.279	2 3/16	8	27020608	176.55	.1714 - .2025	222.35	203.70	197.25	194.30	191.10	188.55
708	1	7/32	.312	2 7/32	8	27020708	176.55	.2026 - .2339	222.35	203.70	197.25	194.30	191.10	188.55
808	1	1/4	.342	2 1/4	8	27020808	176.55	.2340 - .2650	222.35	203.70	197.25	194.30	191.10	188.55
-	1	9/32	.401	2 9/32	8	27023209	193.35	.2651 - .2968	222.35	203.70	197.25	194.30	191.10	188.55
1008	1	5/16	.401	2 5/16	8	27021008	176.55	.2969 - .3281	222.35	203.70	197.25	194.30	191.10	188.55
-	1	11/32	.467	2 11/32	8	27023211	193.35	.3282 - .3593	222.35	203.70	197.25	194.30	191.10	188.55
1208	1	3/8	.467	2 3/8	8	27021208	176.55	.3594 - .3900	222.35	203.70	197.25	194.30	191.10	188.55
609	1 1/8	3/16	.312	2 3/16	8	27020609	185.40	.1714 - .2025	231.70	213.00	206.60	203.70	200.45	197.80
709	1 1/8	7/32	.342	2 7/32	8	27020709	185.40	.2026 - .2339	231.70	213.00	206.60	203.70	200.45	197.80
809	1 1/8	1/4	.374	2 1/4	8	27020809	185.40	.2340 - .2650	231.70	213.00	206.60	203.70	200.45	197.80
-	1 1/8	9/32	.435	2 9/32	8	27023609	203.05	.2651 - .2968	231.70	213.00	206.60	203.70	200.45	197.80
1009	1 1/8	5/16	.435	2 5/16	8	27021009	185.40	.2969 - .3281	231.70	213.00	206.60	203.70	200.45	197.80
610	1 1/4	3/16	.312	2 3/16	8	27020610	194.60	.1714 - .2025	241.40	222.60	216.35	213.25	210.10	207.55
710	1 1/4	7/32	.342	2 7/32	8	27020710	194.60	.2026 - .2339	241.40	222.60	216.35	213.25	210.10	207.55
810	1 1/4	1/4	.374	2 1/4	8	27020810	194.60	.2340 - .2650	241.40	222.60	216.35	213.25	210.10	207.55
-	1 1/4	9/32	.435	2 9/32	8	27024009	213.15	.2651 - .2968	241.40	222.60	216.35	213.25	210.10	207.55
1010	1 1/4	5/16	.435	2 5/16	8	27021010	194.60	.2969 - .3281	241.40	222.60	216.35	213.25	210.10	207.55
-	1 1/4	11/32	.467	2 11/32	8	27024011	213.15	.3282 - .3593	241.40	222.60	216.35	213.25	210.10	207.55
1210	1 1/4	3/8	.467	2 3/8	8	27021210	194.60	.3594 - .3900	241.40	222.60	216.35	213.25	210.10	207.55
811	1 3/8	1/4	.401	2 1/4	8	27020811	204.45	.2340 - .2650	251.85	233.00	226.70	223.55	220.35	217.85
-	1 3/8	9/32	.467	2 9/32	8	27024409	223.85	.2651 - .2968	251.85	233.00	226.70	223.55	220.35	217.85
1011	1 3/8	5/16	.467	2 5/16	8	27021011	204.45	.2969 - .3281	251.85	233.00	226.70	223.55	220.35	217.85
-	1 3/8	11/32	.467	2 11/32	8	27024411	223.85	.3282 - .3593	251.85	233.00	226.70	223.55	220.35	217.85
1211	1 3/8	3/8	.467	2 3/8	8	27021211	204.45	.3594 - .3900	251.85	233.00	226.70	223.55	220.35	217.85
812	1 1/2	1/4	.435	2 1/4	8	27020812	214.65	.2340 - .2650	262.45	243.75	237.45	234.40	231.15	228.70
-	1 1/2	9/32	.467	2 9/32	8	27024809	235.10	.2651 - .2968	262.45	243.75	237.45	234.40	231.15	228.70
1012	1 1/2	5/16	.467	2 5/16	8	27021012	214.65	.2969 - .3281	262.45	243.75	237.45	234.40	231.15	228.70
-	1 1/2	11/32	.467	2 11/32	8	27024811	235.10	.3282 - .3593	262.45	243.75	237.45	234.40	231.15	228.70
1212	1 1/2	3/8	.467	2 3/8	8	27021212	214.65	.3594 - .3900	262.45	243.75	237.45	234.40	231.15	228.70
-	1 1/2	13/32	.467	2 13/32	8	27024813	235.10	.3901 - .4219	262.45	243.75	237.45	234.40	231.15	228.70
-	1 1/2	7/16	.467	2 7/16	8	27024814	235.10	.4220 - .4531	262.45	243.75	237.45	234.40	231.15	228.70
-	1 1/2	15/32	.467	2 15/32	8	27024815	235.10	.4532 - .4843	262.45	243.75	237.45	234.40	231.15	228.70
-	1 1/2	1/2	.467	2 1/2	8	27024816	235.10	.4844 - .5150	262.45	243.75	237.45	234.40	231.15	228.70

*Quantities of 15 or more: price of fractional size in same size range.



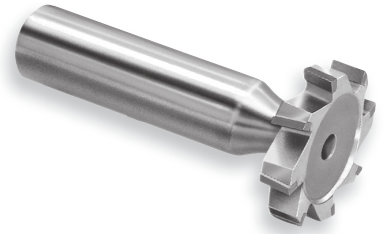
KEYSEAT CUTTERS

CARBIDE TIPPED - STAGGERED TOOTH FOR STEEL

TYPE 2703 - STAGGERED TOOTH FOR STEEL

Alternate right and left axial rake.
 Fast cutting to close tolerances with longer tool life.
 Carbide tips brazed to hardened alloy steel bodies.
 Cutting diameter tolerance: plus .020", plus .015".
 Face width tolerance: plus .0000" minus .0005".
 Straight shank - 1/2" diameter, 2" long.

OPTIONS: Intermediate decimal & metric face width.
 Intermediate decimal & metric cutting diameter.
 Drive flats on shanks.
 Radius corners or chamfer corners.
USE: For milling slots in steel.



AMERICAN STANDARD NO.	TOOL DIAM.	DIMENSIONS				TYPE 2703 EDP NO.	PRICE	MODIFIED FACE WIDTH RANGE	PRICE EACH - FINISHED TO DECIMAL SIZE					
		FACE WIDTH	NECK DIAM.	OVERALL LENGTH	NO. OF TEETH				1 PC.	2 PC.	3 PC.	4 PC.	5-7	8-14*
204	1/2	1/16	.130	2 1/16	6	27030204	\$162.55	.0575 - .0787	\$207.80	\$189.05	\$182.75	\$179.65	\$176.55	\$174.00
304	1/2	3/32	.160	2 3/32	6	27030304	162.55	.0788 - .1088	207.80	189.05	182.75	179.65	176.55	174.00
404	1/2	1/8	.191	2 1/8	6	27030404	162.55	.1089 - .1400	207.80	189.05	182.75	179.65	176.55	174.00
305	5/8	3/32	.191	2 3/32	6	27030305	168.30	.0788 - .1088	213.85	195.15	188.85	185.80	182.65	180.05
405	5/8	1/8	.223	2 1/8	6	27030405	168.30	.1089 - .1400	213.85	195.15	188.85	185.80	182.65	180.05
505	5/8	3/32	.252	2 3/32	6	27030505	168.30	.1401 - .1713	213.85	195.15	188.85	185.80	182.65	180.05
605	5/8	3/16	.279	2 3/16	6	27030605	168.30	.1714 - .2025	213.85	195.15	188.85	185.80	182.65	180.05
406	3/4	1/8	.217	2 1/8	6	27030406	175.90	.1100 - .1400	221.80	203.10	196.80	193.75	190.50	187.95
506	3/4	5/32	.246	2 5/32	6	27030506	175.90	.1401 - .1713	221.80	203.10	196.80	193.75	190.50	187.95
606	3/4	3/16	.279	2 3/16	6	27030606	175.90	.1714 - .2025	221.80	203.10	196.80	193.75	190.50	187.95
-	3/4	7/32	.342	2 7/32	6	27032407	192.60	.2026 - .2339	221.80	203.10	196.80	193.75	190.50	187.95
806	3/4	1/4	.342	2 1/4	6	27030806	175.90	.2340 - .2650	221.80	203.10	196.80	193.75	190.50	187.95
507	7/8	5/32	.246	2 5/32	6	27030507	184.00	.1401 - .1713	230.25	211.50	205.15	202.00	198.85	196.45
607	7/8	3/16	.279	2 3/16	6	27030607	184.00	.1714 - .2025	230.25	211.50	205.15	202.00	198.85	196.45
707	7/8	7/32	.312	2 7/32	6	27030707	184.00	.2026 - .2339	230.25	211.50	205.15	202.00	198.85	196.45
807	7/8	1/4	.342	2 1/4	6	27030807	184.00	.2340 - .2650	230.25	211.50	205.15	202.00	198.85	196.45
608	1	3/16	.279	2 3/16	8	27030608	207.55	.1714 - .2025	254.90	236.20	229.85	226.85	223.65	221.10
708	1	7/32	.312	2 7/32	8	27030708	207.55	.2026 - .2339	254.90	236.20	229.85	226.85	223.65	221.10
808	1	1/4	.342	2 1/4	8	27030808	207.55	.2340 - .2650	254.90	236.20	229.85	226.85	223.65	221.10
-	1	9/32	.401	2 9/32	8	27033209	227.40	.2651 - .2968	254.90	236.20	229.85	226.85	223.65	221.10
1008	1	3/16	.401	2 3/16	8	27031008	207.55	.2969 - .3281	254.90	236.20	229.85	226.85	223.65	221.10
-	1	11/32	.467	2 11/32	8	27033211	227.40	.3282 - .3593	254.90	236.20	229.85	226.85	223.65	221.10
1208	1	3/8	.467	2 3/8	8	27031208	207.55	.3594 - .3900	254.90	236.20	229.85	226.85	223.65	221.10
609	1 1/8	3/16	.312	2 3/16	8	27030609	217.85	.1714 - .2025	265.75	246.95	240.65	237.65	234.50	231.80
709	1 1/8	7/32	.342	2 7/32	8	27030709	217.85	.2026 - .2339	265.75	246.95	240.65	237.65	234.50	231.80
809	1 1/8	1/4	.374	2 1/4	8	27030809	217.85	.2340 - .2650	265.75	246.95	240.65	237.65	234.50	231.80
-	1 1/8	9/32	.435	2 9/32	8	27033609	238.55	.2651 - .2968	265.75	246.95	240.65	237.65	234.50	231.80
1009	1 1/8	3/16	.435	2 3/16	8	27031009	217.85	.2969 - .3281	265.75	246.95	240.65	237.65	234.50	231.80
610	1 1/4	3/16	.312	2 3/16	8	27030610	228.85	.1714 - .2025	277.20	258.45	252.15	249.15	246.05	243.40
710	1 1/4	7/32	.342	2 7/32	8	27030710	228.85	.2026 - .2339	277.20	258.45	252.15	249.15	246.05	243.40
810	1 1/4	1/4	.374	2 1/4	8	27030810	228.85	.2340 - .2650	277.20	258.45	252.15	249.15	246.05	243.40
-	1 1/4	9/32	.435	2 9/32	8	27034009	250.70	.2651 - .2968	277.20	258.45	252.15	249.15	246.05	243.40
1010	1 1/4	3/16	.435	2 3/16	8	27031010	228.85	.2969 - .3281	277.20	258.45	252.15	249.15	246.05	243.40
-	1 1/4	11/32	.467	2 11/32	8	27034011	250.70	.3282 - .3593	277.20	258.45	252.15	249.15	246.05	243.40
1210	1 1/4	3/8	.467	2 3/8	8	27031210	228.85	.3594 - .3900	277.20	258.45	252.15	249.15	246.05	243.40
811	1 3/8	1/4	.401	2 1/4	8	27030811	240.50	.2340 - .2650	289.40	270.65	264.25	261.30	258.10	255.50
-	1 3/8	9/32	.467	2 9/32	8	27034409	263.30	.2651 - .2968	289.40	270.65	264.25	261.30	258.10	255.50
1011	1 3/8	3/16	.467	2 3/16	8	27031011	240.50	.2969 - .3281	289.40	270.65	264.25	261.30	258.10	255.50
-	1 3/8	11/32	.467	2 11/32	8	27034411	263.30	.3282 - .3593	289.40	270.65	264.25	261.30	258.10	255.50
1211	1 3/8	3/8	.467	2 3/8	8	27031211	240.50	.3594 - .3900	289.40	270.65	264.25	261.30	258.10	255.50
812	1 1/2	1/4	.435	2 1/4	8	27030812	252.50	.2340 - .2650	302.00	283.25	276.90	273.90	270.65	268.25
-	1 1/2	9/32	.467	2 9/32	8	27034809	276.50	.2651 - .2968	302.00	283.25	276.90	273.90	270.65	268.25
1012	1 1/2	3/16	.467	2 3/16	8	27031012	252.50	.2969 - .3281	302.00	283.25	276.90	273.90	270.65	268.25
-	1 1/2	11/32	.467	2 11/32	8	27034811	276.50	.3282 - .3593	302.00	283.25	276.90	273.90	270.65	268.25
1212	1 1/2	3/8	.467	2 3/8	8	27031212	252.50	.3594 - .3900	302.00	283.25	276.90	273.90	270.65	268.25
-	1 1/2	13/32	.467	2 13/32	8	27034813	276.50	.3901 - .4219	302.00	283.25	276.90	273.90	270.65	268.25
-	1 1/2	7/16	.467	2 7/16	8	27034814	276.50	.4220 - .4531	302.00	283.25	276.90	273.90	270.65	268.25
-	1 1/2	15/32	.467	2 15/32	8	27034815	276.50	.4532 - .4843	302.00	283.25	276.90	273.90	270.65	268.25
-	1 1/2	1/2	.467	2 1/2	8	27034816	276.50	.4844 - .5150	302.00	283.25	276.90	273.90	270.65	268.25

*Quantities of 15 or more: price of fractional size in same size range.



KEYSEAT CUTTERS

CARBIDE TIPPED - HIGH PERFORMANCE FOR ALUMINUM

TYPE 2704 - STRAIGHT TOOTH - FOR ALUMINUM

HIGH PERFORMANCE

Carbide tips brazed to hardened alloy steel bodies.
Cutting diameter tolerance: plus .020", plus .015".
Face width tolerance: plus .0005" minus .0005".



*TOOL DIAM.	SHANK DIAM.
Up to 1 1/2"	1/2"
1 3/4" to 2"	3/4"

OPTIONS: Intermediate decimal & metric face width.
Intermediate decimal & metric cutting diameter.
Drive flats on shanks.
Radius corners or chamfer corners.

USE: For milling, slotting, grooving, snap rings, and O-rings. Also used in circular interpolation of spotfacing, back spotfacing, and counterboring.
Starting point for Aluminum slotting: 1K-4K SFPM, .002-.008 IPT. Reduce SFPM and IPT by 25% for widths under .0938.

AMERICAN STANDARD NO.	TOOL DIAM.	DIMENSIONS				TYPE 2704 EDP NO.	PRICE	MODIFIED FACE WIDTH RANGE
		FACE WIDTH	NECK DIAM.	OVER-ALL LEN.	NO. OF TEETH			
-	5/8	1/16	.160	2 1/16	2	27042002	\$110.65	.0575 - .0787
305	5/8	3/32	.191	2 3/32	2	27040305	110.65	.0788 - .1099
405	5/8	1/8	.223	2 1/8	2	27040405	110.65	.1100 - .1400
505	5/8	5/32	.252	2 5/32	2	27040505	110.65	.1401 - .1713
605	5/8	3/16	.279	2 3/16	2	27040605	110.65	.1714 - .2025
-	5/8	7/32	.342	2 7/32	2	27042007	110.65	.2026 - .2339
-	5/8	1/4	.342	2 1/4	2	27042008	110.65	.2340 - .2650
-	3/4	1/16	.160	2 1/16	2	27042402	116.15	.0575 - .0787
-	3/4	3/32	.191	2 3/32	2	27042403	116.15	.0788 - .1099
406	3/4	1/8	.217	2 1/8	2	27040406	116.15	.1100 - .1400
506	3/4	5/32	.246	2 5/32	2	27040506	116.15	.1401 - .1713
606	3/4	3/16	.279	2 3/16	2	27040606	116.15	.1714 - .2025
-	3/4	7/32	.342	2 7/32	2	27042407	116.15	.2026 - .2339
806	3/4	1/4	.342	2 1/4	2	27040806	116.15	.2340 - .2650
-	7/8	1/16	.160	2 1/16	2	27042802	124.50	.0575 - .0787
-	7/8	3/32	.191	2 3/32	2	27042803	124.50	.0788 - .1099
-	7/8	1/8	.217	2 1/8	2	27042804	124.50	.1100 - .1400
507	7/8	5/32	.246	2 5/32	2	27040507	124.50	.1401 - .1713
607	7/8	3/16	.279	2 3/16	2	27040607	124.50	.1714 - .2025
707	7/8	7/32	.312	2 7/32	2	27040707	124.50	.2026 - .2339
807	7/8	1/4	.342	2 1/4	2	27040807	124.50	.2340 - .2650
-	1	3/32	.191	2 3/32	2	27043203	131.40	.0788 - .1088
-	1	1/8	.217	2 1/8	2	27043204	131.40	.1089 - .1400
-	1	5/32	.246	2 5/32	2	27043205	131.40	.1401 - .1713
608	1	3/16	.279	2 3/16	2	27040608	131.40	.1714 - .2025
708	1	7/32	.312	2 7/32	2	27040708	131.40	.2026 - .2339
808	1	1/4	.342	2 1/4	2	27040808	131.40	.2340 - .2650
-	1	9/32	.401	2 9/32	2	27043209	131.40	.2651 - .2968
1008	1	5/16	.401	2 5/16	2	27041008	131.40	.2969 - .3281
-	1	11/32	.467	2 11/32	2	27043211	131.40	.3282 - .3593
1208	1	3/8	.467	2 3/8	2	27041208	131.40	.3594 - .3900
-	1 1/8	3/32	.217	2 3/32	2	27043603	131.40	.0788 - .1088
-	1 1/8	1/8	.246	2 1/8	2	27043604	131.40	.1089 - .1400
-	1 1/8	5/32	.279	2 5/32	2	27043605	131.40	.1401 - .1713
609	1 1/8	3/16	.312	2 3/16	2	27040609	131.40	.1714 - .2025
709	1 1/8	7/32	.342	2 7/32	2	27040709	131.40	.2026 - .2339
809	1 1/8	1/4	.374	2 1/4	2	27040809	131.40	.2340 - .2650
-	1 1/8	9/32	.435	2 9/32	2	27043609	131.40	.2651 - .2968
1009	1 1/8	5/16	.435	2 5/16	2	27041009	131.40	.2969 - .3281
-	1 1/8	11/32	.467	2 11/32	2	27043611	131.40	.3282 - .3593
-	1 1/4	3/8	.467	2 3/8	2	27043612	131.40	.3594 - .3900
-	1 1/4	7/32	.217	2 7/32	3	27044003	138.30	.0788 - .1088
-	1 1/4	1/8	.246	2 1/8	3	27044004	138.30	.1089 - .1400
-	1 1/4	5/32	.279	2 5/32	3	27044005	138.30	.1401 - .1713
610	1 1/4	3/16	.312	2 3/16	3	27040610	138.30	.1714 - .2025
710	1 1/4	7/32	.342	2 7/32	3	27040710	138.30	.2026 - .2339
810	1 1/4	1/4	.374	2 1/4	3	27040810	138.30	.2340 - .2650
-	1 1/4	9/32	.435	2 9/32	3	27044009	138.30	.2651 - .2968
1010	1 1/4	5/16	.435	2 5/16	3	27041010	138.30	.2969 - .3281
-	1 1/4	11/32	.467	2 11/32	3	27044011	138.30	.3282 - .3593
1210	1 1/4	3/8	.467	2 3/8	3	27041210	138.30	.3594 - .3900

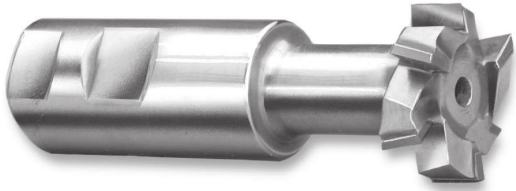
AMERICAN STANDARD NO.	TOOL DIAM.	DIMENSIONS				TYPE 2704 EDP NO.	PRICE	MODIFIED FACE WIDTH RANGE
		FACE WIDTH	NECK DIAM.	OVER-ALL LEN.	NO. OF TEETH			
-	1 3/8	3/32	.312	2 3/32	3	27044403	\$152.15	.0788 - .1088
-	1 3/8	1/8	.342	2 1/8	3	27044404	152.15	.1089 - .1400
-	1 3/8	5/32	.374	2 5/32	3	27044405	152.15	.1401 - .1713
-	1 3/8	3/16	.401	2 3/16	3	27044406	152.15	.1714 - .2025
-	1 3/8	7/32	.401	2 7/32	3	27044407	152.15	.2026 - .2339
811	1 3/8	1/4	.401	2 1/4	3	27040811	152.15	.2340 - .2650
-	1 3/8	9/32	.467	2 9/32	3	27044409	152.15	.2651 - .2968
1011	1 3/8	5/16	.467	2 5/16	3	27041011	152.15	.2969 - .3281
-	1 3/8	11/32	.467	2 11/32	3	27044411	152.15	.3282 - .3593
1211	1 3/8	3/8	.467	2 3/8	3	27041211	152.15	.3594 - .3900
-	1 1/2	3/32	.435	2 3/32	3	27044803	172.90	.0788 - .1088
-	1 1/2	1/8	.435	2 1/8	3	27044804	172.90	.1089 - .1400
-	1 1/2	5/32	.435	2 5/32	3	27044805	172.90	.1401 - .1713
-	1 1/2	3/16	.435	2 3/16	3	27044806	172.90	.1714 - .2025
-	1 1/2	7/32	.435	2 7/32	3	27044807	172.90	.2026 - .2339
812	1 1/2	1/4	.435	2 1/4	3	27040812	172.90	.2340 - .2650
-	1 1/2	9/32	.467	2 9/32	3	27044809	172.90	.2651 - .2968
1012	1 1/2	5/16	.467	2 5/16	3	27041012	172.90	.2969 - .3281
-	1 1/2	11/32	.467	2 11/32	3	27044811	172.90	.3282 - .3593
1212	1 1/2	3/8	.467	2 3/8	3	27041212	207.50	.3594 - .3900
-	1 1/2	13/32	.467	2 13/32	3	27044813	207.50	.3901 - .4219
-	1 1/2	7/16	.467	2 7/16	3	27044814	207.50	.4220 - .4531
-	1 1/2	15/32	.467	2 15/32	3	27044815	207.50	.4532 - .4843
-	1 1/2	1/2	.467	2 1/2	3	27044816	207.50	.4844 - .5150
-	1 3/4	1/8	.718	3 1/8	4	27045604	190.85	.1089 - .1400
-	1 3/4	5/32	.718	3 5/32	4	27045605	190.85	.1401 - .1713
-	1 3/4	3/16	.718	3 3/16	4	27045606	190.85	.1714 - .2025
-	1 3/4	7/32	.718	3 7/32	4	27045607	190.85	.2026 - .2339
-	1 3/4	1/4	.718	3 1/4	4	27045608	190.85	.2340 - .2650
-	1 3/4	9/32	.718	3 9/32	4	27045609	190.85	.2651 - .2968
-	1 3/4	5/16	.718	3 5/16	4	27045610	190.85	.2969 - .3281
-	1 3/4	11/32	.718	3 11/32	4	27045611	190.85	.3282 - .3593
-	1 3/4	3/8	.718	3 3/8	4	27045612	224.10	.3594 - .3900
-	1 3/4	13/32	.718	3 13/32	4	27045613	224.10	.3901 - .4219
-	1 3/4	7/16	.718	3 7/16	4	27045614	224.10	.4220 - .4531
-	1 3/4	15/32	.718	3 15/32	4	27045615	224.10	.4532 - .4843
-	1 3/4	1/2	.718	3 1/2	4	27045616	224.10	.4844 - .5150
-	2	1/8	.718	3 1/8	4	27046404	221.30	.1089 - .1400
-	2	5/32	.718	3 5/32	4	27046405	221.30	.1401 - .1713
-	2	3/16	.718	3 3/16	4	27046406	221.30	.1714 - .2025
-	2	7/32	.718	3 7/32	4	27046407	221.30	.2026 - .2339
-	2	1/4	.718	3 1/4	4	27046408	221.30	.2340 - .2650
-	2	9/32	.718	3 9/32	4	27046409	221.30	.2651 - .2968
-	2	5/16	.718	3 5/16	4	27046410	221.30	.2969 - .3281
-	2	11/32	.718	3 11/32	4	27046411	221.30	.3282 - .3593
-	2	3/8	.718	3 3/8	4	27046412	255.90	.3594 - .3900
-	2	13/32	.718	3 13/32	4	27046413	255.90	.3901 - .4219
-	2	7/16	.718	3 7/16	4	27046414	255.90	.4220 - .4531
-	2	15/32	.718	3 15/32	4	27046415	255.90	.4532 - .4843
-	2	1/2	.718	3 1/2	4	27046416	255.90	.4844 - .5150
-	-	-	-	-	-	-	-	-

*Contact Rock River Tool for price and availability on diameters greater than 2".



T-SLOT & DOVETAIL CUTTERS

CARBIDE TIPPED



TYPE 2720 - T-SLOT CUTTERS FOR NON-FERROUS AND CAST IRON

Right and left hand helix with side cutting teeth.
Straight shank with drive flats.

Cutting diameter tolerance plus .000", minus .010".

TYPE 2721 - T-SLOT CUTTERS FOR STEEL

Same as Type 2720 above except carbide grade and geometry selected for cutting steel.

BOLT DIAMETER	TOOL DIAMETER	CUTTER WIDTH	NECK DIAMETER	OVERALL LENGTH	SHANK DIAMETER	UNDERCUT LENGTH	NO. OF TEETH	TYPE 2720 CAST IRON EDP NO.	PRICE	TYPE 2721 STEEL EDP NO.	PRICE
1/4	9/16	15/64	17/64	2 19/32	1/2	35/64	6	272008	\$169.95	272108	\$183.50
5/16	21/32	17/64	21/64	2 11/16	1/2	39/64	6	272010	167.85	272110	181.30
3/8	25/32	21/64	13/32	3 1/4	3/4	55/64	6	272012	211.30	272112	228.25
1/2	31/32	25/64	17/32	3 7/16	3/4	63/64	6	272016	229.75	272116	248.05
5/8	1 1/4	31/64	21/32	3 15/16	1	1 9/64	6	272020	304.85	272120	329.40
3/4	1 15/32	5/8	25/32	4 7/16	1	1 1/2	6	272024	340.70	272124	367.90
1	1 27/32	53/64	1 1/32	4 13/16	1 1/4	1 43/64	8	272032	486.40	272132	525.40
1 1/4	2 7/32	1 3/32	1 7/32	5 3/8	1 1/4	1 31/32	8	272040	613.80	272140	662.95
1 1/2	2 21/32	1 11/32	1 17/32	5 29/32	1 1/4	2 1/8	8	272048	710.80	272148	767.70

DOVETAIL CUTTERS

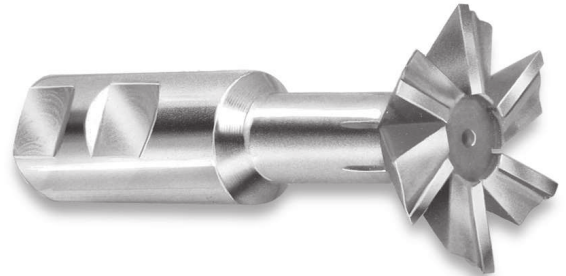
TYPE 2734 - 45° DOVETAIL - FOR NON-FERROUS AND CAST IRON

TYPE 2735 - 45° DOVETAIL - FOR STEEL

TYPE 2736 - 60° DOVETAIL - FOR NON-FERROUS AND CAST IRON

TYPE 2737 - 60° DOVETAIL - FOR STEEL

Right Hand Cut
Straight shank with drive flats.



NOTE:

These dovetail cutters have a corner radius of .015" - .020".

TOOL DIAM.	SHANK DIAM.	OVER-ALL LENGTH	NECK DIAM.	NO. OF TEETH	45° INCLUDED ANGLE				60° INCLUDED ANGLE					
					CUTTER WIDTH	TYPE 2734 CAST IRON EDP NO.	PRICE	TYPE 2735 STEEL EDP NO.	PRICE	CUTTER WIDTH	TYPE 2736 CAST IRON EDP NO.	PRICE	TYPE 2737 STEEL EDP NO.	PRICE
1/2	3/8	2 1/8	3/16	3	5/32	273416	\$170.15	273516	\$172.75	7/32	273616	\$170.15	273716	\$172.75
3/4	3/8	2 1/4	1/4	3	1/4	273424	183.60	273524	186.15	1/4	273624	183.60	273724	186.15
1	1/2	2 1/2	3/8	4	3/16	273432	196.40	273532	199.25	3/8	273632	196.40	273732	199.25
1 1/4	5/8	2 3/4	1/2	4	3/8	273440	223.25	273540	226.45	1/2	273640	223.25	273740	226.45
1 1/2	3/4	3 1/4	1/2	4	1/2	273448	260.85	273548	264.60	5/8	273648	260.85	273748	264.60
2	1	4 1/4	3/4	6	5/8	273464	419.10	273564	425.10	3/4	273664	419.10	273764	425.10
2 1/2	1 1/4	4 3/8	1	6	3/4	273480	566.85	273580	574.75	7/8	273680	566.85	273780	574.75
3	1 1/4	4 1/2	1	6	1	273496	668.35	273596	677.95	1 1/8	273696	668.35	273796	677.95



CHAMFER MILLING CUTTERS

CARBIDE TIPPED - 45° AND 60° CUTTERS

TYPE 2730 - 45° FOR NON-FERROUS & CAST IRON

TYPE 2731 - 45° FOR STEEL

TYPE 2732 - 60° FOR NON-FERROUS & CAST IRON

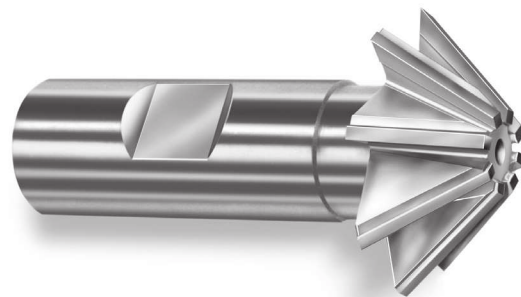
TYPE 2733 - 60° FOR STEEL

Right hand cut.

Straight shank with Weldon flats.

Tool diameter tolerance: plus .015", minus .000".

Tool geometry & carbide grade appropriate for material being machined.



OPTIONS:

Reduced neck diameter.

Shortened shank or reduced shank diameter.

Additional shank drive flat(s).

TOOL DIAMETER	DIMENSIONS			45° ANGLE					60° ANGLE				
	SHANK DIAM.	OVERALL LENGTH	NO. OF TEETH	TOOL WIDTH	TYPE 2730 N-F/CI EDP NO.	PRICE	TYPE 2731 STEEL EDP NO.	PRICE	TOOL WIDTH	TYPE 2732 N-F/CI EDP NO.	PRICE	TYPE 2733 STEEL EDP NO.	PRICE
1/2	3/8	2 1/8	4	1/8	273016	\$207.90	273116	\$228.60	7/32	273216	\$207.90	273316	\$228.60
3/4	3/8	2 1/8	6	3/16	273024	224.10	273124	246.45	5/16	273224	224.10	273324	246.45
1	1/2	2 1/2	6	3/16	273032	262.95	273132	289.15	7/16	273232	262.95	273332	289.15
1 1/2	3/4	2 3/4	8	1/2	273048	333.20	273148	366.70	5/8	273248	333.20	273348	366.70

RADIUS CUTTERS - CARBIDE TIPPED

TYPE 2718 - FOR NON-FERROUS & CAST IRON

TYPE 2719 - FOR STEEL

Right hand cut; Convex radius.

Straight shank with Weldon flats.

Tool geometry & carbide grade appropriate for material being machined.

Tool diameter tolerance: plus .005", minus .000".

Tool radius tolerance thru 1/8" radius: plus .001", minus .001".

over 1/8" radius: plus .002", minus .002".



OPTIONS:

Reduced neck diameter.

Shortened shank or reduced shank diameter.

Additional shank drive flat(s).

TOOL RADIUS	TOOL DIAMETER	DIMENSIONS				TYPE 2718 N-F/CI EDP NO.	PRICE	TYPE 2719 STEEL EDP NO.	PRICE
		TOOL WIDTH	SHANK DIAM.	OVERALL LENGTH	NO. OF TEETH				
1/32	3/4	1/16	1/2	3	6	271801	\$246.20	271901	\$270.85
1/16	3/4	1/8	1/2	3	6	271802	246.20	271902	270.85
3/32	7/8	3/16	1/2	3	6	271803	269.20	271903	296.00
1/8	1 1/4	1/4	3/4	3 1/2	6	271804	292.90	271904	322.30
5/32	1 5/16	5/16	3/4	3 1/2	6	271805	337.15	271905	370.80
3/16	1 3/8	3/8	3/4	3 1/2	6	271806	356.75	271906	392.45
1/4	1 1/2	1/2	3/4	4	6	271808	369.30	271908	406.30



ANGLE & STAGGERED TOOTH CUTTERS

CARBIDE TIPPED

SINGLE ANGLE CUTTERS

TYPE 2714 - 45° RIGHT

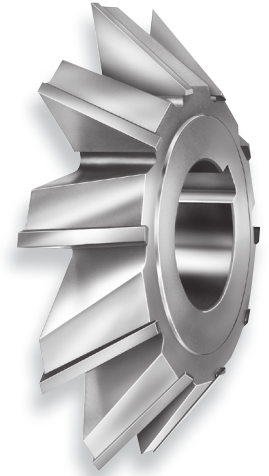
TYPE 2716 - 45° LEFT

TYPE 2724 - 60° RIGHT

TYPE 2726 - 60° LEFT

Carbide tips brazed to alloy steel bodies.
General purpose cutters for cutting non-ferrous materials and cast iron.

TOOL DIAMETER	WIDTH	ARBOR HOLE	NO. OF TEETH	RIGHT 45° TYPE 2714 EDP NO.	LEFT 45° TYPE 2716 EDP NO.	RIGHT 60° TYPE 2724 EDP NO.	LEFT 60° TYPE 2726 EDP NO.	ALL TYPES PRICE
3	½	1	8	271408	271608	272408	272608	\$501.15
4	½	1 ¼	10	271416	271616	272416	272616	620.15
4	¾	1 ¼	10	271424	271624	272424	272624	672.75



DOUBLE ANGLE CUTTERS

TYPE 2750 - 45° INCLUDED

TYPE 2752 - 60° INCLUDED

TYPE 2754 - 90° INCLUDED

Carbide tips brazed to alloy steel bodies.
General purpose cutters for cutting non-ferrous materials and cast iron.

TOOL DIAMETER	WIDTH	ARBOR HOLE	NO. OF TEETH	45° TYPE 2750 EDP NO.	60° TYPE 2752 EDP NO.	90° TYPE 2754 EDP NO.	ALL TYPES PRICE
2 ¾	½	1	8	-	275207	275407	421.90
3	½	1	8	275008	275208	275408	526.15
4	½	1 ¼	10	275016	275216	275416	651.15
4	¾	1 ¼	10	275024	275224	275424	706.35
4	1	1 ¼	10	-	275232	275432	826.60

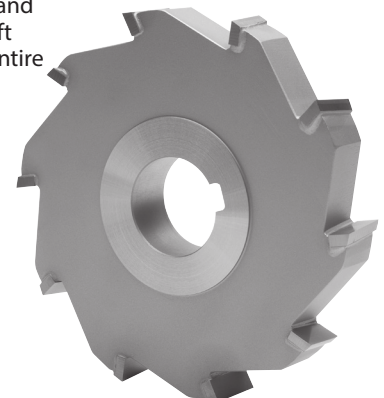


TOOL DIAM.	THICKNESS		TYPE 2547 FOR MOST MATERIALS			PRICE
	FRAC.	DEC.	NO. OF TEETH	1" ARBOR EDP NO.	1 ¼" ARBOR EDP NO.	
3	⅜	.1875	8	254710	-	\$475.35
3	¼	.2500	8	254712	-	486.65
3	⅜	.3125	8	254714	-	491.00
3	¾	.3750	8	254716	-	492.95
3	½	.5000	8	254718	-	508.30
3	⅝	.6250	8	254720	-	544.15
4	⅜	.1875	10	254722	-	516.45
4	¼	.2500	10	254724	-	522.90
4	⅜	.3125	10	254726	-	529.20
4	¾	.3750	10	254728	-	535.60
4	½	.5000	10	254730	-	543.10
4	⅝	.6250	10	254732	-	553.25
4	¾	.7500	10	254734	-	559.50
6	¼	.2500	14	-	254750	671.40
6	⅜	.3125	14	-	254752	676.50
6	¾	.3750	14	-	254754	677.40
6	½	.5000	14	-	254756	686.30
6	⅝	.6250	14	-	254758	690.20
6	¾	.7500	14	-	254760	712.70
6	1	1.0000	14	-	254762	763.05

STAGGERED TOOTH SIDE MILLING CUTTERS

TYPE 2547 - FOR MOST MATERIALS

For milling most types of materials including steels, stainless steels, cast irons, aluminums, and composite materials. Alternating right and left hand axial rake. Carbide extends across the entire length of each tooth.



Tool diameter tolerance: +.016"/-0"
Face width tolerance: +.001"/-0"
Arbor hole tolerance: +.001"/-0"



SIDE MILLING CUTTERS

CARBIDE TIPPED - FOUR TYPES - NON-FERROUS, CAST IRON, STEEL OR HIGH TEMP ALLOY

TYPE 2540 - FOR NON-FERROUS MACHINING

Use for production milling of aluminum, magnesium, zinc, brass, bronze, plastics and non-metals.
Very large flute capacity assures good chip flow and permits high feed rates.

TYPE 2541 - FOR CAST IRON MACHINING

Use for heavy production milling of cast iron and malleable iron.
Large flute capacity but more teeth permits high metal removal at moderate speeds and feeds.

TYPE 2542 - FOR STEEL MACHINING

Use for production milling of steel.
Steel cutting grade of carbide permits the heavy chip loads recommended for milling steel.

TYPE 2543 - FOR HIGH TEMP ALLOY MACHINING

Use for production milling of austenitic and PH series of stainless steel and other high temp alloys. Larger number of teeth.

ALL TYPES:

For slotting, straddle milling and face milling.
Carbide tips brazed to alloy steel bodies.
Cutting diameter tolerance: plus 1/16" minus .000".
Face width tolerance: plus .001" minus .000".
Arbor hole tolerance: plus .001" minus .000".



OPTIONS:

Alternate chamfer every other tooth.
Radius both sides.
Chamfer both sides.

TOOL DIAM.	THICKNESS		TYPE 2540 FOR NON-FERROUS				TYPE 2541 FOR CAST IRON				TYPE 2542 FOR STEEL				TYPE 2543 FOR HIGH TEMP ALLOY			
	FRAC.	DEC.	NO. OF TEETH	1" ARBOR EDP NO.	1 1/4" ARBOR EDP NO.	PRICE	NO. OF TEETH	1" ARBOR EDP NO.	1 1/4" ARBOR EDP NO.	PRICE	NO. OF TEETH	1" ARBOR EDP NO.	1 1/4" ARBOR EDP NO.	PRICE	NO. OF TEETH	1" ARBOR EDP NO.	1 1/4" ARBOR EDP NO.	PRICE
3	1/4	.2500	4	254030	-	\$160.55	6	254130	-	\$200.80	6	254230	-	\$198.25	8	254330	-	\$247.30
3	5/16	.3125	4	254031	-	168.50	6	254131	-	201.70	6	254231	-	200.95	8	254331	-	259.15
3	3/8	.3750	4	254032	-	174.65	6	254132	-	205.65	6	254232	-	203.50	8	254332	-	262.60
3	7/16	.4375	4	254033	-	181.80	6	254133	-	222.40	6	254233	-	226.95	-	-	-	-
3	1/2	.5000	4	254034	-	190.65	6	254134	-	231.60	6	254234	-	229.95	8	254334	-	293.60
4	1/4	.2500	4	254040	-	209.20	8	254140	-	259.40	8	254240	-	261.05	10	254340	-	309.25
4	5/16	.3125	4	254041	-	215.15	8	254141	-	268.10	8	254241	-	277.20	10	254341	-	324.90
4	3/8	.3750	4	254042	254043	220.80	8	254142	254143	281.70	8	254242	254243	277.20	10	254342	254343	332.10
4	7/16	.4375	4	254074	-	221.80	8	254174	-	287.45	8	254274	-	285.45	10	254374	-	360.65
4	1/2	.5000	4	254044	254045	221.80	8	254144	254145	296.90	8	254244	254245	295.40	10	254344	254345	363.40
4	9/16	.5625	4	254094	-	241.10	8	254194	-	305.10	8	254294	-	310.00	-	-	-	-
4	5/8	.6250	4	254046	254047	258.75	8	254146	254147	330.65	8	254246	254247	362.40	10	254346	254347	382.65
4	3/4	.7500	4	254048	254049	289.90	8	254148	254149	330.65	8	254248	254249	366.95	10	254348	254349	394.10
5	1/4	.2500	6	254050	-	292.25	10	254150	-	343.50	10	254250	-	343.65	-	-	-	-
5	5/16	.3125	-	-	-	-	10	254151	-	343.50	10	254251	-	343.65	-	-	-	-
5	3/8	.3750	-	-	-	-	10	-	254153	351.75	10	-	254253	360.80	-	-	-	-
5	7/16	.4375	6	-	254075	304.05	10	-	254175	353.50	10	-	254275	372.40	-	-	-	-
5	1/2	.5000	6	254054	254055	307.65	10	254154	254155	375.30	10	254254	254255	372.50	12	254354	254355	417.40
5	9/16	.5625	6	-	254095	317.55	10	-	254195	381.70	10	-	254295	388.95	-	-	-	-
5	5/8	.6250	6	-	254057	334.05	10	-	254157	406.30	10	-	254257	456.50	12	-	254357	455.90
5	3/4	.7500	6	254058	254059	356.10	10	254158	254159	460.00	10	254258	254259	505.25	12	254358	254359	511.25
5	1	1.0000	6	-	254015	356.70	10	-	254115	500.65	10	-	254215	532.90	-	-	-	-
6	3/8	.3750	6	254062	-	313.60	12	-	254163	432.20	12	-	254263	456.60	-	-	-	-
6	1/2	.5000	6	254064	254065	343.50	12	254164	254165	458.95	12	254264	254265	470.25	14	254364	254365	536.95
6	5/8	.6250	6	-	254067	376.40	12	-	254167	501.60	12	-	254267	511.60	14	-	254367	541.25
6	3/4	.7500	6	254068	254069	432.90	12	254168	254169	562.80	12	254268	254269	582.75	14	254368	254369	584.05
6	1	1.0000	6	-	254016	496.20	12	-	254116	568.70	12	-	254216	594.55	-	-	-	-
				1 1/4" ARBOR	1 1/2" ARBOR			1 1/4" ARBOR	1 1/2" ARBOR			1 1/4" ARBOR	1 1/2" ARBOR			1 1/4" ARBOR	1 1/2" ARBOR	
8	3/4	.7500	8	254088	254089	563.15	12	254188	254189	590.65	12	254288	254289	612.70	14	254388	-	626.25
8	1	1.0000	8	254080	254081	611.15	12	254180	254181	615.55	12	254280	254281	637.75	-	-	-	-



SLITTING SAWS - COARSE TOOTH

CARBIDE TIPPED - FOUR TYPES - NON-FERROUS, CAST IRON, STEEL OR HIGH TEMP ALLOY

TYPE 2550 - FOR NON-FERROUS

Use for machining aluminum, magnesium, zinc, brass, bronze, plastics and non-metals.

TYPE 2552 - FOR CAST IRON

Use for machining cast iron and malleable iron.

TYPE 2554 - FOR STEEL

Use for machining steel.
Steel cutting grade of carbide.

TYPE 2558 - FOR HIGH TEMP ALLOY

Use for production milling of austenitic and PH series of stainless steel and other high temp alloys.
Larger number of teeth.

ALL TYPES:

For slitting, slotting, milling and cut-off operations.
Precision ground.
Cutting diameter tolerance plus 1/16" minus .000".
Arbor hole tolerance plus .001" minus .000".
Face width tolerance plus .001" minus .000".

OPTIONS:

Alternate chamfer every other tooth.
Chamfer both sides.
Radius both sides.
Tighter tolerances for cutting diameter and face width.



SAW DIAM.	THICKNESS		ARBOR HOLE	TYPE 2550 FOR NON-FERROUS			TYPE 2552 FOR CAST IRON			TYPE 2554 FOR STEEL			TYPE 2558 FOR HIGH TEMP ALLOY		
	FRAC.	DEC.		NO. OF TEETH	EDP NO.	PRICE	NO. OF TEETH	EDP NO.	PRICE	NO. OF TEETH	EDP NO.	PRICE	NO. OF TEETH	EDP NO.	PRICE
3	3/32	.0938	1	6	255032	\$190.35	6	255232	\$219.05	8	255432	\$217.20	8	255832	\$203.50
3	1/8	.1250	1	6	255034	196.05	6	255234	232.00	8	255434	243.10	8	255834	211.30
3	3/16	.1875	1	6	255036	203.85	6	255236	245.40	8	255436	245.40	8	255836	219.45
3	1/4	.2500	1	6	255037	138.65	6	255237	201.15	8	255437	201.15	8	255837	241.45
3	5/16	.3125	1	6	255031	145.65	6	255231	201.15	8	255431	201.15	8	255831	241.45
3	3/8	.3750	1	6	255038	148.50	6	255238	204.45	8	255438	204.45	8	255838	245.40
4	3/32	.0938	1	6	255042	233.65	8	255242	280.85	8	255442	280.85	10	255842	292.80
4	1/8	.1250	1	6	255044	240.65	8	255244	284.65	8	255444	284.65	10	255844	296.45
4	3/16	.1875	1	6	255046	244.20	8	255246	306.70	8	255446	306.70	10	255846	300.60
4	1/4	.2500	1	6	255047	178.15	8	255247	260.45	8	255447	260.45	10	255847	312.75
4	5/16	.3125	1	6	255041	183.20	8	255241	270.55	8	255441	270.55	10	255841	324.50
4	3/8	.3750	1	6	255048	188.00	8	255248	280.35	8	255448	280.35	10	255848	336.45
4	3/8	.3750	1 1/4	6	255049	188.00	8	255249	280.35	8	255449	280.35	10	255849	336.45
5	3/32	.0938	1	8	255052	252.85	10	255252	377.05	10	255452	377.05	12	255852	398.00
5	1/8	.1250	1	8	255054	252.85	10	255254	405.60	10	255454	405.60	12	255854	406.30
5	3/16	.1875	1	-	-	-	10	255256	456.60	10	255456	456.60	12	255856	422.50
6	1/8	.1250	1 1/4	8	255063	344.30	12	255263	495.00	12	255463	495.00	14	255863	475.30
6	3/16	.1875	1 1/4	8	255065	453.75	12	255265	511.30	12	255465	511.30	14	255865	487.55
6	1/4	.2500	1 1/4	8	255067	470.05	12	255267	522.00	12	255467	522.00	14	255867	495.50
8	1/8	.1250	1 1/4	10	255083	440.20	-	-	-	-	-	-	-	-	-
8	3/16	.1875	1 1/4	-	-	-	16	255285	703.65	16	255485	703.65	-	-	-
8	1/4	.2500	1 1/4	-	-	-	16	255287	730.55	16	255487	730.55	-	-	-



SLITTING SAWS - STANDARD TOOTH

CARBIDE TIPPED - FOUR TYPES - NON-FERROUS, CAST IRON, STEEL OR HIGH TEMP ALLOY

TYPE 2551 - FOR NON-FERROUS

Similar to our Type 2550.
Except designed with more teeth for better finishes.

TYPE 2553 - FOR CAST IRON

Similar to our Type 2552.
Except designed with more teeth for better finishes.

TYPE 2556 - FOR STEEL

Similar to our Type 2554.
Except designed with more teeth for better finishes.

TYPE 2559 - FOR HIGH TEMP ALLOY

Similar to our Type 2558.
Except designed with more teeth for better finishes.



SAW DIAM.	THICKNESS		TYPE 2551 FOR NON-FERROUS				TYPE 2553 FOR CAST IRON				TYPE 2556 FOR STEEL				TYPE 2559 FOR HIGH TEMP ALLOY			
	FRAC.	DEC.	NO. OF TEETH	1" ARBOR EDP NO.	1 1/4" ARBOR EDP NO.	PRICE	NO. OF TEETH	1" ARBOR EDP NO.	1 1/4" ARBOR EDP NO.	PRICE	NO. OF TEETH	1" ARBOR EDP NO.	1 1/4" ARBOR EDP NO.	PRICE	NO. OF TEETH	1" ARBOR EDP NO.	1 1/4" ARBOR EDP NO.	PRICE
3	1/16	.0625	12	255198	-	\$299.90	12	255398	-	\$299.90	16	255698	-	\$358.55	12	255998	-	\$337.30
3	3/64	.0781	12	255100	-	354.65	12	255300	-	354.65	16	255600	-	433.60	12	255900	-	377.85
3	3/32	.0938	12	255102	-	299.90	12	255302	-	299.90	16	255602	-	358.55	12	255902	-	337.30
3	7/64	.1094	12	255104	-	298.75	12	255304	-	298.75	16	255604	-	330.95	12	255904	-	322.00
3	1/8	.1250	12	255106	255107	241.10	12	255306	255307	241.10	16	255606	-	299.85	12	255906	255907	307.55
3	5/32	.1562	12	255108	-	287.40	12	255308	-	287.40	16	255608	-	314.90	12	255908	-	314.90
3	3/16	.1875	12	255109	-	257.00	12	255309	-	257.00	16	255609	-	330.15	12	255909	-	322.50
3	7/32	.2188	12	255110	-	297.30	12	255310	-	297.30	16	255610	-	345.25	12	255910	-	332.70
3	1/4	.2500	12	255111	-	312.60	12	255311	-	312.60	16	255611	-	360.55	12	255911	-	342.75
3	3/16	.3125	12	255112	-	342.75	12	255312	-	342.75	16	255612	-	395.25	12	255912	-	375.50
3	3/8	.3750	12	255113	-	373.00	12	255313	-	373.00	16	255613	-	430.10	12	255913	-	410.75
3	7/16	.4375	-	-	-	-	-	-	-	-	16	255614	-	477.95	12	255914	-	446.30
3	1/2	.5000	-	-	-	-	-	-	-	-	16	255615	-	531.15	12	255915	-	481.70
4	1/16	.0625	14	255116	255117	349.20	14	255316	-	349.20	20	255616	-	433.60	14	255916	255917	383.65
4	3/64	.0781	14	255118	255119	412.50	14	255318	255319	412.50	20	255618	255619	474.45	14	255918	255919	439.60
4	3/32	.0938	14	255120	255121	349.20	14	255320	255321	349.20	20	255620	255621	433.60	14	255920	255921	383.65
4	7/64	.1094	14	255122	255123	356.60	14	255322	255323	356.60	20	255622	255623	410.10	14	255922	255923	454.80
4	1/8	.1250	14	255124	255125	314.90	14	255324	255325	314.90	20	255624	255625	383.05	14	255924	255925	383.05
4	5/32	.1562	14	255126	255127	357.75	14	255326	255327	357.75	20	255626	255627	411.55	14	255926	255927	393.15
4	3/16	.1875	14	255128	255129	335.30	14	255328	255329	335.30	20	255628	255629	413.30	14	255928	255929	405.65
4	7/32	.2188	14	255130	255131	380.50	14	255330	255331	380.50	20	255630	255631	437.60	14	255930	255931	418.45
4	1/4	.2500	14	255132	255133	387.90	14	255332	255333	387.90	20	255632	255633	443.30	14	255932	255933	428.45
4	5/16	.3125	14	255134	255135	418.45	14	255334	255335	418.45	20	255634	255635	481.05	14	255934	255935	458.70
4	3/8	.3750	14	255136	255137	448.55	14	255336	255337	448.55	20	255636	255637	515.85	14	255936	255937	493.85
4	7/16	.4375	-	-	-	-	-	-	-	-	20	255638	-	573.10	14	255938	-	529.45
4	1/2	.5000	-	-	-	-	-	-	-	-	20	255640	-	636.95	14	255940	-	564.90
5	3/64	.0781	16	255142	255143	511.00	16	255342	255343	511.00	24	255642	255643	587.50	16	255942	255943	541.65
5	3/32	.0938	16	255144	255145	421.60	16	255344	255345	421.60	24	255644	255645	591.65	16	255944	255945	464.50
5	7/64	.1094	16	255146	255147	479.95	16	255346	255347	479.95	24	255646	255647	552.05	16	255946	255947	511.00
5	1/8	.1250	16	255148	255149	389.45	16	255348	255349	389.45	24	255648	255649	478.70	16	255948	255949	451.10
5	5/32	.1562	16	255150	255151	425.85	16	255350	255351	425.85	24	255650	255651	489.65	16	255950	255951	466.00
5	3/16	.1875	16	255152	255153	436.15	16	255352	255353	436.15	24	255652	255653	524.10	16	255952	255953	491.40
5	7/32	.2188	16	255154	255155	468.65	16	255354	255355	468.65	24	255654	255655	539.00	16	255954	255955	516.60
5	1/4	.2500	16	255156	255157	488.85	16	255356	255357	488.85	24	255656	255657	562.25	16	255956	255957	541.70
5	5/16	.3125	16	255158	255159	531.55	16	255358	255359	531.55	24	255658	255659	611.45	16	255958	255959	584.55
5	3/8	.3750	16	255160	255161	574.50	16	255360	255361	574.50	24	255660	255661	660.60	16	255960	255961	629.95
5	7/16	.4375	-	-	-	-	-	-	-	-	24	255662	-	734.10	16	255962	-	665.45
5	1/2	.5000	-	-	-	-	-	-	-	-	24	255664	-	815.65	16	255964	-	700.90
6	3/64	.0781	18	255166	255167	574.45	18	255366	255367	574.45	28	255666	255667	660.55	18	255966	255967	609.10
6	3/32	.0938	18	255168	255169	511.60	18	255368	255369	511.60	28	255668	255669	605.15	18	255968	255969	560.90
6	7/64	.1094	18	255170	255171	576.40	18	255370	255371	576.40	28	255670	255671	662.85	18	255970	255971	611.15
6	1/8	.1250	18	255172	255173	487.60	18	255372	255373	487.60	28	255672	255673	634.95	18	255972	255973	577.00
6	5/32	.1562	18	255174	255175	551.65	18	255374	255375	551.65	28	255674	255675	634.65	18	255974	255975	602.20
6	3/16	.1875	18	255176	255177	534.20	18	255376	255377	534.20	28	255676	255677	680.80	18	255976	255977	627.35
6	7/32	.2188	18	255178	255179	602.20	18	255378	255379	602.20	28	255678	255679	692.55	18	255978	255979	652.60
6	1/4	.2500	18	255180	255181	627.45	18	255380	255381	627.45	28	255680	255681	740.25	18	255980	255981	687.40
6	5/16	.3125	18	255182	255183	652.75	18	255382	255383	652.75	28	255682	255683	750.60	18	255982	255983	718.15
6	3/8	.3750	18	255184	255185	677.75	18	255384	255385	677.75	28	255684	255685	779.50	18	255984	255985	745.75
6	7/16	.4375	-	-	-	-	-	-	-	-	28	255690	-	866.00	18	255990	-	781.25
6	1/2	.5000	-	-	-	-	-	-	-	-	28	255692	-	962.25	18	255992	-	816.75
8	1/8	.1250	24	-	255186	809.55	24	-	255386	809.55	24	-	255686	855.80	24	-	255986	855.80
8	5/32	.1562	24	-	255187	819.15	24	-	255387	819.15	24	-	255687	865.50	24	-	255987	865.50
8	3/16	.1875	24	-	255188	828.80	24	-	255388	828.80	24	-	255688	875.05	24	-	255988	875.05
8	1/4	.2500	24	-	255189	878.80	24	-	255389	878.80	24	-	255689	925.15	24	-	255989	925.15



3" CARBIDE TIPPED MILLING CUTTERS FOR STEEL

Width grinds between .0600" and .5312"

TYPE 2556 - FOR STEEL

Cutter Notes (All cutters on page)

16 Teeth

C-5 Carbide

1° - 3° Positive Radial Rake

Width Tolerance: +.001"/-.000"

OD tolerance: +.0313"/-.000"

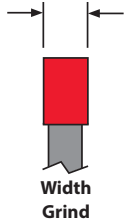
1" Arbor hole +.001"/-.000"

ANSI standard keyway dimensions

Add 5% to grind the hub width thinner

Add 5% to match OD's on cutter sets within .001"

Not designed to be used on heat treated materials greater than 475 Brinell (50Rc)



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED TO DECIMAL SIZE					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
3	0.0600-0.0703	255698D	.0555	\$436.90	\$407.40	\$401.90	\$399.20	\$397.50	\$358.55
3	0.0704-0.0859	255600D	.0711	511.80	482.35	476.95	474.30	472.55	433.60
3	0.0860-0.1015	255602D	.0867	436.90	407.40	401.90	399.20	397.50	358.55
3	0.1016-0.1171	255604D	.1024	409.05	379.45	374.10	371.50	369.65	330.95
3	0.1172-0.1406	255606D	.1180	378.00	348.55	343.15	340.55	338.65	299.85
3	0.1407-0.1718	255608D	.1562	393.20	363.70	358.35	355.60	353.80	314.90
3	0.1719-0.2031	255609D	.1875	408.35	378.85	373.45	370.75	368.95	330.15
3	0.2032-0.2343	255610D	.2188	423.45	394.00	388.65	385.80	384.25	345.25
3	0.2344-0.2812	255611D	.2500	438.75	409.20	403.85	401.20	399.35	360.55
3	0.2813-0.3437	255612D	.3125	473.55	443.90	438.60	435.90	434.10	395.30
3	0.3438-0.4062	255613D	.3750	508.45	478.95	473.55	470.80	469.05	430.10
3	0.4063-0.4687	255614D	.4375	556.10	526.60	521.25	518.60	516.80	477.95
3	0.4688-0.5312	255615D	.5000	609.25	579.75	574.45	571.75	569.95	531.15

Corner Radius or Chamfer on ONE Side

TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED WITH RADIUS OR CHAMFER					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
3	0.0600-0.0703	255698R1	.0555	\$456.60	\$413.40	\$407.40	\$404.20	\$402.30	\$401.35
3	0.0704-0.0859	255600R1	.0711	531.60	488.40	482.40	479.25	477.35	476.45
3	0.0860-0.1015	255602R1	.0867	456.60	413.40	407.40	404.20	402.30	401.35
3	0.1016-0.1171	255604R1	.1024	428.85	385.60	379.60	376.45	374.65	373.50
3	0.1172-0.1406	255606R1	.1180	397.80	354.60	348.60	345.45	343.55	342.50
3	0.1407-0.1718	255608R1	.1562	412.90	369.80	363.75	360.70	358.60	357.75
3	0.1719-0.2031	255609R1	.1875	428.15	384.95	379.00	375.75	373.95	372.95
3	0.2032-0.2343	255610R1	.2188	443.30	400.05	394.05	390.90	389.05	388.00
3	0.2344-0.2812	255611R1	.2500	458.55	415.30	409.25	406.25	404.20	403.25
3	0.2813-0.3437	255612R1	.3125	493.25	450.00	443.95	440.85	439.00	438.05
3	0.3438-0.4062	255613R1	.3750	528.05	485.05	479.00	475.85	473.85	472.95
3	0.4063-0.4687	255614R1	.4375	575.95	532.70	526.75	523.55	521.75	520.85
3	0.4688-0.5312	255615R1	.5000	629.15	585.95	579.90	576.80	574.80	574.00

Radius Notes

Maximum radius on one side is .2656"

Full radius and maximum radius on both sides is 1/2 the width of the cutter

A non-tangent radii must be quoted

Chamfer Notes

Chamfer Angles can range from 0° to 45°

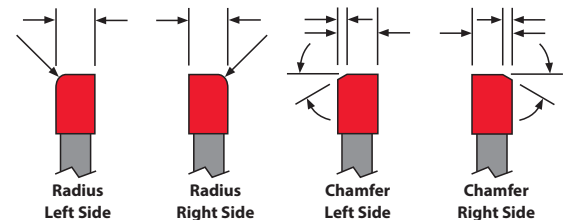
Chamfer is measured off of the OD

Maximum chamfer is the LESSER of 1/3 the width of the cutter OR .2656" length of angle when measured across the OD

Chamfer Angle Tolerance: +/- 1/2°

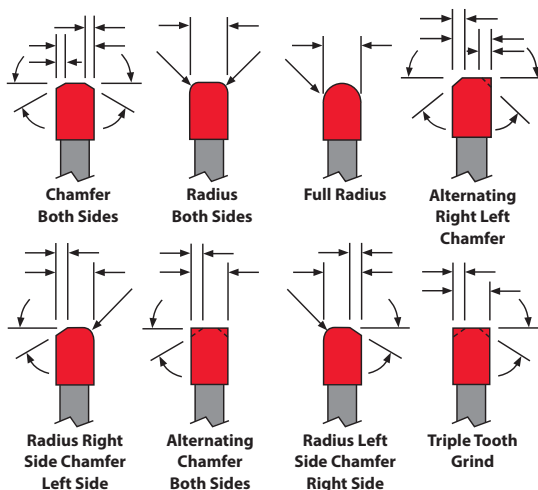
Chamfers greater than 45° must be quoted

Specify side for radius or chamfer



Corner Radius or Chamfer on BOTH Sides OR a Full Radius

Alternating Chamfers add 5%



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH FINISHED WITH RADII, CHAMFERS OR COMBO					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
3	0.0600-0.0703	255698R2	.0555	\$467.45	\$419.60	\$412.75	\$409.25	\$407.30	\$406.20
3	0.0704-0.0859	255600R2	.0711	542.55	494.55	487.75	484.30	482.25	481.05
3	0.0860-0.1015	255602R2	.0867	467.45	419.60	412.75	409.25	407.30	406.20
3	0.1016-0.1171	255604R2	.1024	439.70	391.75	384.95	381.50	379.40	378.30
3	0.1172-0.1406	255606R2	.1180	408.75	360.70	353.95	350.50	348.35	347.20
3	0.1407-0.1718	255608R2	.1562	423.80	375.75	369.10	365.75	363.55	362.45
3	0.1719-0.2031	255609R2	.1875	439.00	391.00	384.35	380.90	378.70	377.65
3	0.2032-0.2343	255610R2	.2188	454.30	406.25	399.40	396.00	393.95	392.65
3	0.2344-0.2812	255611R2	.2500	469.45	421.35	414.60	411.15	409.05	408.00
3	0.2813-0.3437	255612R2	.3125	504.20	456.10	449.40	445.90	443.80	442.70
3	0.3438-0.4062	255613R2	.3750	539.00	490.95	484.30	480.90	478.85	477.65
3	0.4063-0.4687	255614R2	.4375	586.85	538.85	532.15	528.70	526.55	525.45
3	0.4688-0.5312	255615R2	.5000	640.05	591.90	585.35	581.90	579.70	578.60



4" CARBIDE TIPPED MILLING CUTTERS FOR STEEL

Width grinds between .0600" and .5312"

TYPE 2556 - FOR STEEL

Cutter Notes (All cutters on page)

20 Teeth

C-5 Carbide

1° - 3° Positive Radial Rake

Width Tolerance: +.001"/-.000"

OD tolerance: +.0313"/-.000"

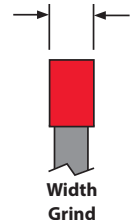
1" Arbor hole +.001"/-.000"

ANSI standard keyway dimensions

Add 5% to grind the hub width thinner

Add 5% to match OD's on cutter sets within .001"

Not designed to be used on heat treated materials greater than 475 Brinell (50RC)



Width Grind

TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED TO DECIMAL SIZE					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
4	0.0600-0.0703	255616D	.0545	\$526.00	\$491.80	\$485.40	\$482.05	\$480.10	\$433.60
4	0.0704-0.0859	255618D	.0701	566.65	532.60	526.20	522.85	520.95	474.45
4	0.0860-0.1015	255620D	.0858	526.00	491.80	485.40	482.05	480.10	433.60
4	0.1016-0.1171	255622D	.1014	502.45	468.35	461.95	458.60	456.55	410.10
4	0.1172-0.1406	255624D	.1170	475.30	441.20	434.75	431.50	429.50	383.00
4	0.1407-0.1718	255626D	.1562	503.85	469.75	463.40	460.00	458.10	411.60
4	0.1719-0.2031	255628D	.1875	505.50	471.45	465.00	461.70	459.65	413.15
4	0.2032-0.2343	255630D	.2188	529.85	495.85	489.40	486.05	484.15	437.65
4	0.2344-0.2812	255632D	.2500	535.65	501.55	495.10	491.80	489.90	443.30
4	0.2813-0.3437	255634D	.3125	573.30	539.30	532.85	529.55	527.55	481.05
4	0.3438-0.4062	255636D	.3750	608.15	574.10	567.75	564.40	562.30	515.85
4	0.4063-0.4687	255638D	.4375	665.45	631.30	625.05	621.60	619.60	573.10
4	0.4688-0.5312	255640D	.5000	729.10	695.10	688.65	685.35	683.40	636.95

Corner Radius or Chamfer on ONE Side

TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED WITH RADIUS OR CHAMFER					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
4	0.0600-0.0703	255616R1	.0545	\$547.25	\$498.35	\$491.40	\$487.60	\$485.35	\$484.15
4	0.0704-0.0859	255618R1	.0701	588.10	539.30	532.15	528.35	526.20	524.95
4	0.0860-0.1015	255620R1	.0858	547.25	498.35	491.40	487.60	485.35	484.15
4	0.1016-0.1171	255622R1	.1014	523.65	474.85	467.85	464.10	461.85	460.65
4	0.1172-0.1406	255624R1	.1170	496.65	447.85	440.75	437.00	434.70	433.60
4	0.1407-0.1718	255626R1	.1562	525.25	476.45	469.35	465.60	463.40	462.15
4	0.1719-0.2031	255628R1	.1875	526.80	478.00	470.95	467.15	464.95	463.75
4	0.2032-0.2343	255630R1	.2188	551.35	502.50	495.40	491.60	489.40	488.25
4	0.2344-0.2812	255632R1	.2500	556.95	508.05	501.05	497.40	495.05	493.90
4	0.2813-0.3437	255634R1	.3125	594.60	545.95	538.70	535.00	532.85	531.55
4	0.3438-0.4062	255636R1	.3750	629.50	580.70	573.45	569.80	567.60	566.35
4	0.4063-0.4687	255638R1	.4375	686.80	637.95	630.95	627.20	624.85	623.75
4	0.4688-0.5312	255640R1	.5000	750.45	701.75	694.55	690.85	688.60	687.40

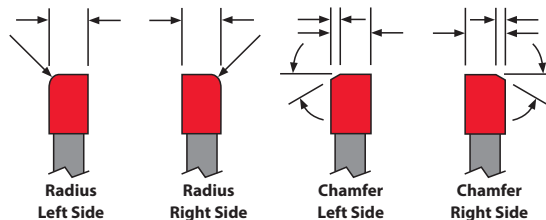
Radius Notes

Maximum radius on one side is .2656"
Full radius and maximum radius on both sides is 1/2 the width of the cutter
A non-tangent radii must be quoted

Chamfer Notes

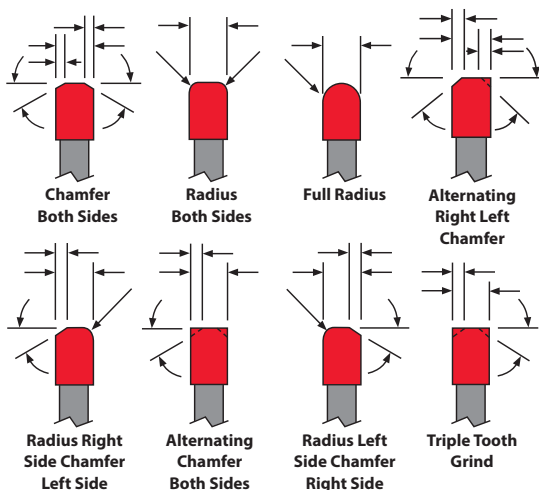
Chamfer Angles can range from 0° to 45°
Chamfer is measured off of the OD
Maximum chamfer is the LESSER of 1/3 the width of the cutter OR .2656" length of angle when measured across the OD
Chamfer Angle Tolerance: +/- 1/2°
Chamfers greater than 45° must be quoted

Specify side for radius or chamfer



Corner Radius or Chamfer on BOTH Sides OR a Full Radius

Alternating Chamfers add 5%



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH FINISHED WITH RADII, CHAMFERS OR COMBO					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
4	0.0600-0.0703	255616R2	.0545	\$558.85	\$505.00	\$497.25	\$493.15	\$490.60	\$489.30
4	0.0704-0.0859	255618R2	.0701	599.60	545.95	538.15	533.85	531.45	530.10
4	0.0860-0.1015	255620R2	.0858	558.85	505.00	497.25	493.15	490.60	489.30
4	0.1016-0.1171	255622R2	.1014	535.30	481.60	473.65	469.60	467.05	465.75
4	0.1172-0.1406	255624R2	.1170	508.35	454.50	446.65	442.50	440.05	438.75
4	0.1407-0.1718	255626R2	.1562	536.90	483.05	475.25	471.05	468.60	467.30
4	0.1719-0.2031	255628R2	.1875	538.50	484.60	476.70	472.80	470.25	468.90
4	0.2032-0.2343	255630R2	.2188	563.00	509.05	501.35	497.15	494.65	493.30
4	0.2344-0.2812	255632R2	.2500	568.50	514.75	507.00	502.80	500.30	499.05
4	0.2813-0.3437	255634R2	.3125	606.35	552.55	544.65	540.50	538.20	536.65
4	0.3438-0.4062	255636R2	.3750	641.05	587.30	579.40	575.30	572.90	571.60
4	0.4063-0.4687	255638R2	.4375	698.45	644.55	636.65	632.65	630.25	628.85
4	0.4688-0.5312	255640R2	.5000	762.10	708.25	700.45	696.35	693.95	692.60



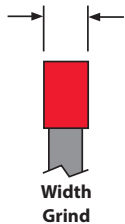
5" CARBIDE TIPPED MILLING CUTTERS FOR STEEL

Width grinds between .0704" and .5312"

TYPE 2556 - FOR STEEL

Cutter Notes (All cutters on page)

- 24 Teeth
- C-5 Carbide
- 1° - 3° Positive Radial Rake
- Width Tolerance: +.001"/-.000"
- OD tolerance: +.0313"/-.000"
- 1" Arbor hole +.001"/-.000"
- ANSI standard keyway dimensions
- Add 5% to grind the hub width thinner
- Add 5% to match OD's on cutter sets within .001"
- Not designed to be used on heat treated materials greater than 475 Brinell (50Rc)



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED TO DECIMAL SIZE					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
5	0.0704 - 0.0859	255642D	.0691	\$681.80	\$647.05	\$640.65	\$637.15	\$635.10	\$587.50
5	0.0860 - 0.1015	255644D	.0848	686.00	651.15	644.70	641.30	639.20	591.65
5	0.1016 - 0.1171	255646D	.1004	646.20	611.50	605.05	601.55	599.50	552.05
5	0.1172 - 0.1406	255648D	.1160	573.00	538.25	531.60	528.25	526.20	478.70
5	0.1407 - 0.1718	255650D	.1562	584.00	549.25	542.70	539.30	537.25	489.65
5	0.1719 - 0.2031	255652D	.1875	618.45	583.65	577.10	573.65	571.65	524.10
5	0.2032 - 0.2343	255654D	.2188	633.40	598.65	591.90	588.55	586.60	539.00
5	0.2344 - 0.2812	255656D	.2500	656.50	621.70	615.15	611.85	609.80	562.25
5	0.2813 - 0.3437	255658D	.3125	705.65	670.95	664.40	661.00	658.85	611.45
5	0.3438 - 0.4062	255660D	.3750	755.05	720.25	713.55	710.25	708.15	660.65
5	0.4063 - 0.4687	255662D	.4375	828.50	793.60	787.10	783.60	781.65	734.10
5	0.4688 - 0.5312	255664D	.5000	910.00	875.10	868.65	865.20	863.30	815.65

Corner Radius or Chamfer on ONE Side

TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED WITH RADIUS OR CHAMFER					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
5	0.0704 - 0.0859	255642R1	.0691	\$703.50	\$653.65	\$646.45	\$642.60	\$640.35	\$639.15
5	0.0860 - 0.1015	255644R1	.0848	707.65	657.90	650.60	646.80	644.50	643.25
5	0.1016 - 0.1171	255646R1	.1004	667.95	618.05	610.80	607.00	604.80	603.65
5	0.1172 - 0.1406	255648R1	.1160	594.55	544.75	537.50	533.75	531.45	530.25
5	0.1407 - 0.1718	255650R1	.1562	605.65	555.90	548.60	544.75	542.55	541.25
5	0.1719 - 0.2031	255652R1	.1875	640.05	590.25	583.05	579.25	577.00	575.75
5	0.2032 - 0.2343	255654R1	.2188	654.95	605.20	597.85	594.20	591.80	590.65
5	0.2344 - 0.2812	255656R1	.2500	678.25	628.40	621.10	617.30	615.00	613.75
5	0.2813 - 0.3437	255658R1	.3125	727.35	677.55	670.35	666.60	664.30	663.10
5	0.3438 - 0.4062	255660R1	.3750	776.75	726.80	719.45	715.70	713.40	712.30
5	0.4063 - 0.4687	255662R1	.4375	850.00	800.30	792.95	789.20	787.00	785.70
5	0.4688 - 0.5312	255664R1	.5000	931.55	881.80	874.45	870.75	868.50	867.20

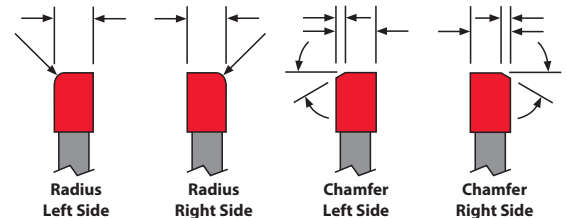
Radius Notes

- Maximum radius on one side is .2656"
- Full radius and maximum radius on both sides is 1/2 the width of the cutter
- A non-tangent radii must be quoted

Chamfer Notes

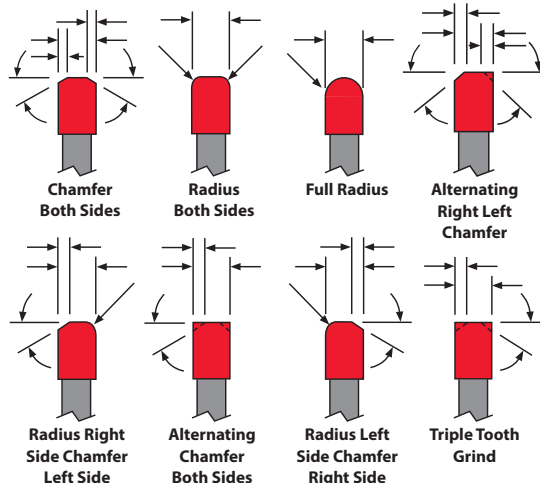
- Chamfer Angles can range from 0° to 45°
- Chamfer is measured off of the OD
- Maximum chamfer is the LESSER of 1/3 the width of the cutter OR .2656" length of angle when measured across the OD
- Chamfer Angle Tolerance: +/- 1/2°
- Chamfers greater than 45° must be quoted

Specify side for radius or chamfer



Corner Radius or Chamfer on BOTH Sides OR a Full Radius

Alternating Chamfers add 5%



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH FINISHED WITH RADII, CHAMFERS OR COMBO					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
5	0.0704 - 0.0859	255642R2	.0691	726.65	\$666.85	\$658.25	\$653.65	\$651.00	\$649.50
5	0.0860 - 0.1015	255644R2	.0848	730.85	671.05	662.35	657.70	654.95	653.60
5	0.1016 - 0.1171	255646R2	.1004	691.10	631.30	622.60	618.00	615.30	613.90
5	0.1172 - 0.1406	255648R2	.1160	617.80	558.00	549.30	544.70	541.95	540.55
5	0.1407 - 0.1718	255650R2	.1562	628.85	569.15	560.35	555.75	553.05	551.60
5	0.1719 - 0.2031	255652R2	.1875	663.25	603.45	594.75	590.25	587.50	586.00
5	0.2032 - 0.2343	255654R2	.2188	678.25	618.45	609.80	605.15	602.40	600.90
5	0.2344 - 0.2812	255656R2	.2500	701.35	641.55	632.85	628.35	625.55	624.10
5	0.2813 - 0.3437	255658R2	.3125	750.60	690.85	682.10	677.50	674.80	673.30
5	0.3438 - 0.4062	255660R2	.3750	799.75	740.05	731.30	726.70	724.00	722.60
5	0.4063 - 0.4687	255662R2	.4375	873.20	813.60	804.75	800.15	797.40	796.00
5	0.4688 - 0.5312	255664R2	.5000	954.80	895.05	886.25	881.75	879.05	877.60



6" CARBIDE TIPPED MILLING CUTTERS FOR STEEL

Width grinds between .0704" and .5312"

TYPE 2556 - FOR STEEL

Cutter Notes (All cutters on page)

28 Teeth

C-5 Carbide

1° - 3° Positive Radial Rake

Width Tolerance: +.001"/-.000"

OD tolerance: +.0313"/-.000"

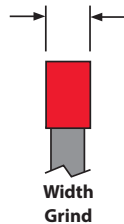
1" Arbor hole +.001"/-.000"

ANSI standard keyway dimensions

Add 5% to grind the hub width thinner

Add 5% to match OD's on cutter sets within .001"

Not designed to be used on heat treated materials greater than 475 Brinell (50RC)



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED TO DECIMAL SIZE					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
6	0.0704-0.0859	255666D	.0681	766.30	728.05	720.60	716.80	714.50	660.55
6	0.0860-0.1015	255668D	.0838	710.85	672.70	665.25	661.40	659.15	605.15
6	0.1016-0.1171	255670D	.0994	768.60	730.35	722.90	719.10	716.75	662.85
6	0.1172-0.1406	255672D	.1150	740.70	702.50	695.10	691.15	688.90	634.95
6	0.1407-0.1718	255674D	.1562	740.40	702.05	694.65	690.85	688.55	634.65
6	0.1719-0.2031	255676D	.1875	786.60	748.45	741.05	737.15	734.80	680.80
6	0.2032-0.2343	255678D	.2188	798.25	760.05	752.65	748.80	746.45	692.55
6	0.2344-0.2812	255680D	.2500	846.10	807.80	800.40	796.55	794.25	740.25
6	0.2813-0.3437	255682D	.3125	856.35	818.05	810.65	806.80	804.45	750.60
6	0.3438-0.4062	255684D	.3750	885.25	846.85	839.45	835.55	833.30	779.50
6	0.4063-0.4687	255690D	.4375	971.80	933.55	926.15	922.15	919.95	866.00
6	0.4688-0.5312	255692D	.5000	1067.95	1029.80	1022.40	1018.40	1016.20	962.25

Corner Radius or Chamfer on ONE Side

TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED WITH RADIUS OR CHAMFER					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
6	0.0704-0.0859	255666R1	.0681	789.15	735.30	727.15	722.75	720.25	718.85
6	0.0860-0.1015	255668R1	.0838	733.65	679.95	671.75	667.40	664.75	663.40
6	0.1016-0.1171	255670R1	.0994	791.35	737.55	729.30	725.10	722.55	721.10
6	0.1172-0.1406	255672R1	.1150	763.45	709.70	701.50	697.20	694.60	693.20
6	0.1407-0.1718	255674R1	.1562	763.20	709.40	701.20	696.85	694.30	692.95
6	0.1719-0.2031	255676R1	.1875	809.40	755.60	747.40	743.00	740.55	739.20
6	0.2032-0.2343	255678R1	.2188	821.15	767.30	759.05	754.85	752.25	750.85
6	0.2344-0.2812	255680R1	.2500	868.90	815.05	806.80	802.60	800.00	798.60
6	0.2813-0.3437	255682R1	.3125	879.25	825.30	817.15	812.85	810.30	808.90
6	0.3438-0.4062	255684R1	.3750	907.90	854.10	845.90	841.65	839.05	837.60
6	0.4063-0.4687	255690R1	.4375	994.60	940.65	932.50	928.20	925.65	924.25
6	0.4688-0.5312	255692R1	.5000	1090.80	1036.90	1028.75	1024.45	1021.80	1020.55

Radius Notes

Maximum radius on one side is .2656"

Full radius and maximum radius on both sides is 1/2 the width of the cutter

A non-tangent radii must be quoted

Chamfer Notes

Chamfer Angles can range from 0° to 45°

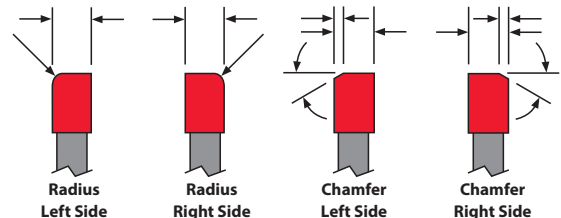
Chamfer is measured off of the OD

Maximum chamfer is the LESSER of 1/3 the width of the cutter OR .2656" length of angle when measured across the OD

Chamfer Angle Tolerance: +/- 1/2°

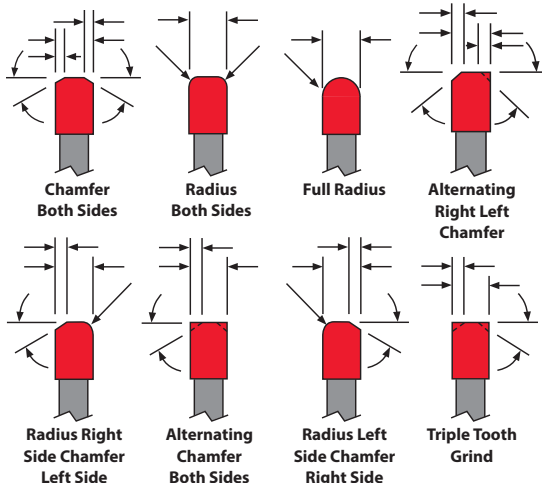
Chamfers greater than 45° must be quoted

Specify side for radius or chamfer



Corner Radius or Chamfer on BOTH Sides OR a Full Radius

Alternating Chamfers add 5%



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH FINISHED WITH RADI, CHAMFERS OR COMBO					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
6	0.0704-0.0859	255666R2	.0681	813.85	749.70	739.80	734.80	731.75	730.10
6	0.0860-0.1015	255668R2	.0838	758.45	694.25	684.45	679.35	676.25	674.70
6	0.1016-0.1171	255670R2	.0994	816.10	751.90	742.15	736.95	734.05	732.30
6	0.1172-0.1406	255672R2	.1150	788.25	724.00	714.20	709.05	706.15	704.45
6	0.1407-0.1718	255674R2	.1562	787.90	723.75	714.00	708.80	705.80	704.15
6	0.1719-0.2031	255676R2	.1875	834.15	770.00	760.10	755.05	752.00	750.30
6	0.2032-0.2343	255678R2	.2188	845.85	781.65	771.80	766.70	763.75	762.05
6	0.2344-0.2812	255680R2	.2500	893.50	829.35	819.65	814.45	811.45	809.75
6	0.2813-0.3437	255682R2	.3125	903.90	839.70	829.90	824.80	821.80	820.10
6	0.3438-0.4062	255684R2	.3750	932.65	868.50	858.70	853.50	850.60	848.80
6	0.4063-0.4687	255690R2	.4375	1019.25	955.05	945.25	940.15	937.15	935.50
6	0.4688-0.5312	255692R2	.5000	1115.55	1051.30	1041.50	1036.40	1033.40	1031.70



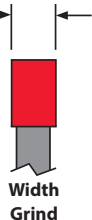
3" CARBIDE TIPPED MILLING CUTTERS

Width grinds between .0600" and .5312"

TYPE 2559 - MULTI-PURPOSE

Cutter Notes (All cutters on page)

- 12 Teeth
- C-2(m) Carbide
- 5° Positive Radial Rake
- Width Tolerance: +.001"/-.000"
- OD tolerance: +.0313"/-.000"
- 1" Arbor hole +.001"/-.000"
- ANSI standard keyway dimensions
- Add 5% to grind the hub width thinner
- Add 5% to match OD's on cutter sets within .001"
- Not designed to be used on heat treated materials greater than 363 Brinell (39Rc)



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED TO DECIMAL SIZE					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
3	0.0600-0.0703	255998D	.0555	\$414.70	\$384.65	\$379.60	\$376.85	\$375.25	\$337.30
3	0.0704-0.0859	255900D	.0711	455.30	425.30	420.10	417.40	415.65	377.85
3	0.0860-0.1015	255902D	.0867	414.70	384.65	379.60	376.85	375.25	337.30
3	0.1016-0.1171	255904D	.1024	399.35	369.50	364.25	361.50	359.85	322.00
3	0.1172-0.1406	255906D	.1180	384.95	354.95	349.70	346.95	345.35	307.55
3	0.1407-0.1718	255908D	.1562	392.40	362.50	357.25	354.55	352.95	314.90
3	0.1719-0.2031	255909D	.1875	399.95	369.90	364.65	362.00	360.40	322.50
3	0.2032-0.2343	255910D	.2188	410.10	380.25	375.00	372.25	370.60	332.70
3	0.2344-0.2812	255911D	.2500	420.30	390.35	385.00	382.25	380.75	342.75
3	0.2813-0.3437	255912D	.3125	452.95	423.00	417.75	415.10	413.45	375.50
3	0.3438-0.4062	255913D	.3750	488.05	458.15	452.95	450.10	448.50	410.75
3	0.4063-0.4687	255914D	.4375	523.55	493.70	488.50	485.75	484.10	446.30
3	0.4688-0.5312	255915D	.5000	559.25	529.15	523.95	521.25	519.75	481.70

Corner Radius or Chamfer on ONE Side

TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED WITH RADIUS OR CHAMFER					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
3	0.0600-0.0703	255998R1	.0555	\$434.95	\$390.70	\$384.65	\$381.85	\$380.00	\$379.10
3	0.0704-0.0859	255900R1	.0711	475.55	431.20	425.30	422.30	420.50	419.60
3	0.0860-0.1015	255902R1	.0867	434.95	390.70	384.65	381.85	380.00	379.10
3	0.1016-0.1171	255904R1	.1024	419.70	375.35	369.50	366.50	364.60	363.65
3	0.1172-0.1406	255906R1	.1180	405.20	360.80	354.95	351.95	350.20	349.10
3	0.1407-0.1718	255908R1	.1562	412.60	368.30	362.50	359.40	357.65	356.60
3	0.1719-0.2031	255909R1	.1875	420.25	375.75	369.90	366.95	365.25	364.20
3	0.2032-0.2343	255910R1	.2188	430.30	386.15	380.25	377.05	375.35	374.25
3	0.2344-0.2812	255911R1	.2500	440.45	396.10	390.35	387.25	385.50	384.45
3	0.2813-0.3437	255912R1	.3125	473.15	428.90	423.00	419.95	418.25	417.10
3	0.3438-0.4062	255913R1	.3750	508.45	464.05	458.15	455.15	453.35	452.40
3	0.4063-0.4687	255914R1	.4375	543.90	499.60	493.70	490.65	488.85	487.90
3	0.4688-0.5312	255915R1	.5000	579.40	535.05	529.15	526.25	524.30	523.40

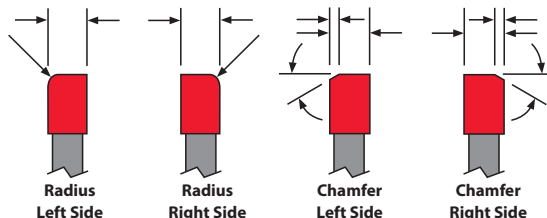
Radius Notes

Maximum radius on one side is .2656"
Full radius and maximum radius on both sides is 1/2 the width of the cutter
A non-tangent radii must be quoted

Chamfer Notes

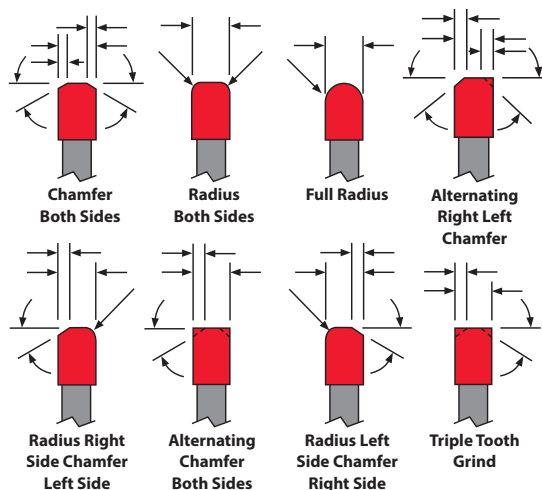
Chamfer Angles can range from 0° to 45°
Chamfer is measured off of the OD
Maximum chamfer is the LESSER of 1/3 the width of the cutter OR .2656" length of angle when measured across the OD
Chamfer Angle Tolerance: +/- 1/2°
Chamfers greater than 45° must be quoted

Specify side for radius or chamfer



Corner Radius or Chamfer on BOTH Sides OR a Full Radius

Alternating Chamfers add 5%



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH FINISHED WITH RADII, CHAMFERS OR COMBO					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
3	0.0600-0.0703	255998R2	.0555	\$445.75	\$396.65	\$390.15	\$386.65	\$384.60	\$383.65
3	0.0704-0.0859	255900R2	.0711	486.40	437.10	430.70	427.25	425.15	424.05
3	0.0860-0.1015	255902R2	.0867	445.75	396.65	390.15	386.65	384.60	383.65
3	0.1016-0.1171	255904R2	.1024	430.65	381.30	374.80	371.50	369.40	368.25
3	0.1172-0.1406	255906R2	.1180	416.05	366.80	360.25	356.90	354.85	353.80
3	0.1407-0.1718	255908R2	.1562	423.55	374.20	367.80	364.40	362.40	361.25
3	0.1719-0.2031	255909R2	.1875	430.95	381.85	375.30	371.85	369.85	368.80
3	0.2032-0.2343	255910R2	.2188	441.35	391.95	385.55	382.15	380.05	379.10
3	0.2344-0.2812	255911R2	.2500	451.30	402.05	395.55	392.15	390.15	389.05
3	0.2813-0.3437	255912R2	.3125	484.05	434.75	428.20	424.90	422.95	421.85
3	0.3438-0.4062	255913R2	.3750	519.30	470.05	463.45	460.05	458.05	457.00
3	0.4063-0.4687	255914R2	.4375	554.65	505.55	499.05	495.55	493.65	492.50
3	0.4688-0.5312	255915R2	.5000	590.25	541.15	534.50	531.20	529.10	528.00



4" CARBIDE TIPPED MILLING CUTTERS

Width grinds between .0600" and .5312"

TYPE 2559 – MULTI-PURPOSE

Cutter Notes (All cutters on page)

14 Teeth

C-2(m) Carbide

5° Positive Radial Rake

Width Tolerance: +.001"/-.000"

OD tolerance: +.0313"/-.000"

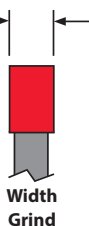
1" Arbor hole +.001"/-.000"

ANSI standard keyway dimensions

Add 5% to grind the hub width thinner

Add 5% to match OD's on cutter sets within .001"

Not designed to be used on heat treated materials greater than 363 Brinell (39RC)



Width Grind

TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED TO DECIMAL SIZE					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
4	0.0600-0.0703	255916D	.0545	\$474.80	\$440.45	\$434.15	\$430.95	\$428.95	\$383.70
4	0.0704-0.0859	255918D	.0701	530.80	496.35	490.05	486.85	485.00	439.60
4	0.0860-0.1015	255920D	.0858	474.80	440.45	434.15	430.95	428.95	383.70
4	0.1016-0.1171	255922D	.1014	546.15	511.70	505.45	502.35	500.25	454.80
4	0.1172-0.1406	255924D	.1170	474.35	439.80	433.45	430.25	428.40	383.05
4	0.1407-0.1718	255926D	.1562	484.30	449.95	443.65	440.45	438.45	393.15
4	0.1719-0.2031	255928D	.1875	496.80	462.40	456.10	453.00	451.00	405.65
4	0.2032-0.2343	255930D	.2188	509.65	475.25	468.90	465.70	463.60	418.40
4	0.2344-0.2812	255932D	.2500	519.75	485.20	478.95	475.70	473.70	428.45
4	0.2813-0.3437	255934D	.3125	549.80	515.35	509.05	505.85	503.85	458.70
4	0.3438-0.4062	255936D	.3750	585.15	550.75	544.50	541.20	539.10	493.85
4	0.4063-0.4687	255938D	.4375	620.65	586.25	579.90	576.70	574.60	529.45
4	0.4688-0.5312	255940D	.5000	656.25	621.65	615.45	612.15	610.25	564.90

Corner Radius or Chamfer on ONE Side

TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED WITH RADIUS OR CHAMFER					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
4	0.0600-0.0703	255916R1	.0545	\$496.75	\$446.90	\$439.95	\$436.25	\$434.15	\$433.00
4	0.0704-0.0859	255918R1	.0701	552.65	502.75	495.85	492.15	490.05	488.85
4	0.0860-0.1015	255920R1	.0858	496.75	446.90	439.95	436.25	434.15	433.00
4	0.1016-0.1171	255922R1	.1014	568.15	518.15	511.20	507.65	505.45	504.25
4	0.1172-0.1406	255924R1	.1170	496.20	446.30	439.30	435.65	433.45	432.35
4	0.1407-0.1718	255926R1	.1562	506.20	456.25	449.40	445.75	443.65	442.45
4	0.1719-0.2031	255928R1	.1875	518.80	468.90	461.95	458.25	456.10	454.85
4	0.2032-0.2343	255930R1	.2188	531.55	481.65	474.65	471.05	468.90	467.65
4	0.2344-0.2812	255932R1	.2500	541.60	491.60	484.65	481.05	478.95	477.75
4	0.2813-0.3437	255934R1	.3125	571.75	521.75	514.85	511.25	509.05	507.80
4	0.3438-0.4062	255936R1	.3750	606.95	557.10	550.05	546.45	544.50	543.15
4	0.4063-0.4687	255938R1	.4375	642.55	592.70	585.60	582.10	579.90	578.70
4	0.4688-0.5312	255940R1	.5000	678.10	628.25	621.30	617.65	615.45	614.30

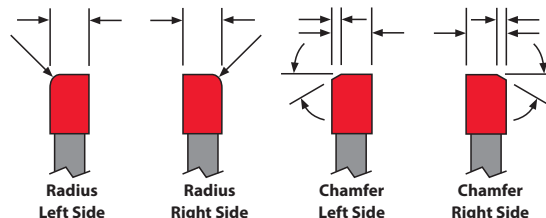
Radius Notes

Maximum radius on one side is .2656"
Full radius and maximum radius on both sides is 1/2 the width of the cutter
A non-tangent radii must be quoted

Chamfer Notes

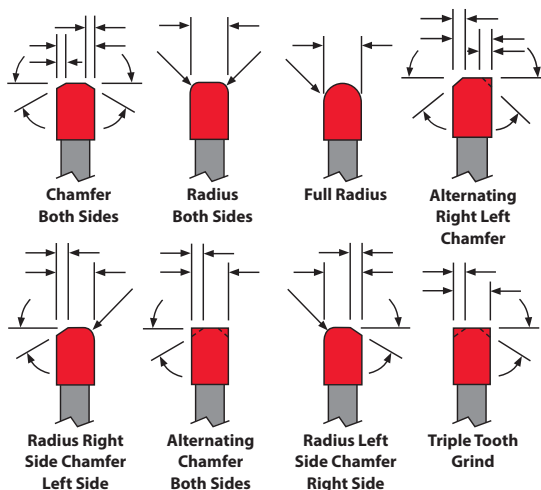
Chamfer Angles can range from 0° to 45°
Chamfer is measured off of the OD
Maximum chamfer is the LESSER of 1/3 the width of the cutter OR .2656" length of angle when measured across the OD
Chamfer Angle Tolerance: +/- 1/2°
Chamfers greater than 45° must be quoted

Specify side for radius or chamfer



Corner Radius or Chamfer on BOTH Sides OR a Full Radius

Alternating Chamfers add 5%



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH FINISHED WITH RADII, CHAMFERS OR COMBO					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
4	0.0600-0.0703	255916R2	.0545	\$508.45	\$453.40	\$445.65	\$441.70	\$439.30	\$438.05
4	0.0704-0.0859	255918R2	.0701	564.15	509.25	501.55	497.55	495.10	493.85
4	0.0860-0.1015	255920R2	.0858	508.45	453.40	445.65	441.70	439.30	438.05
4	0.1016-0.1171	255922R2	.1014	579.60	524.65	516.85	513.00	510.55	509.25
4	0.1172-0.1406	255924R2	.1170	507.70	452.65	445.00	441.05	438.70	437.35
4	0.1407-0.1718	255926R2	.1562	517.85	462.85	455.10	451.15	448.60	447.35
4	0.1719-0.2031	255928R2	.1875	530.40	475.35	467.65	463.60	461.20	460.00
4	0.2032-0.2343	255930R2	.2188	543.10	488.05	480.45	476.50	474.10	472.80
4	0.2344-0.2812	255932R2	.2500	553.05	498.10	490.45	486.40	484.05	482.70
4	0.2813-0.3437	255934R2	.3125	583.25	528.30	520.55	516.60	514.15	512.95
4	0.3438-0.4062	255936R2	.3750	618.60	563.55	555.90	551.95	549.60	548.20
4	0.4063-0.4687	255938R2	.4375	654.10	599.15	591.45	587.40	584.95	583.85
4	0.4688-0.5312	255940R2	.5000	689.65	634.70	626.90	622.95	620.55	619.15



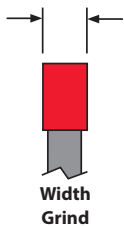
5" CARBIDE TIPPED MILLING CUTTERS

Width grinds between .0704" and .5312"

TYPE 2559 – MULTI-PURPOSE

Cutter Notes (All cutters on page)

- 16 Teeth
- C-2(m) Carbide
- 5° Positive Radial Rake
- Width Tolerance: +.001"/-.000"
- OD tolerance: +.0313"/-.000"
- 1" Arbor hole +.001"/-.000"
- ANSI standard keyway dimensions
- Add 5% to grind the hub width thinner
- Add 5% to match OD's on cutter sets within .001"
- Not designed to be used on heat treated materials greater than 363 Brinell (39Rc)



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED TO DECIMAL SIZE					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
5	0.0704 - 0.0859	255942D	.0691	\$634.95	\$599.60	\$593.20	\$590.00	\$588.05	\$541.65
5	0.0860 - 0.1015	255944D	.0848	557.90	522.65	516.35	513.00	511.05	464.50
5	0.1016 - 0.1171	255946D	.1004	604.10	569.00	562.50	559.35	557.30	511.00
5	0.1172 - 0.1406	255948D	.1160	544.50	509.05	502.75	499.45	497.50	451.10
5	0.1407 - 0.1718	255950D	.1562	559.40	524.10	517.85	514.40	512.40	466.00
5	0.1719 - 0.2031	255952D	.1875	584.70	549.45	543.10	539.85	537.80	491.40
5	0.2032 - 0.2343	255954D	.2188	609.95	574.60	568.30	564.95	563.00	516.60
5	0.2344 - 0.2812	255956D	.2500	635.00	599.70	593.45	590.10	588.20	541.70
5	0.2813 - 0.3437	255958D	.3125	677.75	642.55	636.20	632.85	630.95	584.55
5	0.3438 - 0.4062	255960D	.3750	723.15	687.95	681.65	678.30	676.25	629.95
5	0.4063 - 0.4687	255962D	.4375	758.65	723.60	717.20	713.90	711.80	665.45
5	0.4688 - 0.5312	255964D	.5000	794.30	759.05	752.65	749.40	747.40	700.90

Corner Radius or Chamfer on ONE Side

TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED WITH RADIUS OR CHAMFER					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
5	0.0704 - 0.0859	255942R1	.0691	\$657.05	\$606.10	\$599.00	\$595.25	\$593.00	\$591.90
5	0.0860 - 0.1015	255944R1	.0848	580.15	529.10	522.00	518.35	516.05	514.85
5	0.1016 - 0.1171	255946R1	.1004	626.35	575.50	568.30	564.65	562.35	561.20
5	0.1172 - 0.1406	255948R1	.1160	566.50	515.60	508.55	504.85	502.60	501.45
5	0.1407 - 0.1718	255950R1	.1562	581.55	530.55	523.45	519.85	517.50	516.45
5	0.1719 - 0.2031	255952R1	.1875	606.80	555.95	548.75	545.15	542.95	541.70
5	0.2032 - 0.2343	255954R1	.2188	632.05	581.10	574.05	570.45	568.15	566.95
5	0.2344 - 0.2812	255956R1	.2500	657.15	606.35	599.15	595.50	593.20	592.00
5	0.2813 - 0.3437	255958R1	.3125	700.00	648.95	641.90	638.15	636.10	634.85
5	0.3438 - 0.4062	255960R1	.3750	745.35	694.45	687.30	683.60	681.55	680.25
5	0.4063 - 0.4687	255962R1	.4375	780.95	730.05	722.85	719.20	716.95	715.75
5	0.4688 - 0.5312	255964R1	.5000	816.45	765.55	758.45	754.85	752.45	751.30

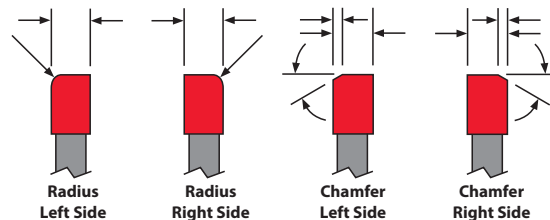
Radius Notes

- Maximum radius on one side is .2656"
- Full radius and maximum radius on both sides is 1/2 the width of the cutter
- A non-tangent radii must be quoted

Chamfer Notes

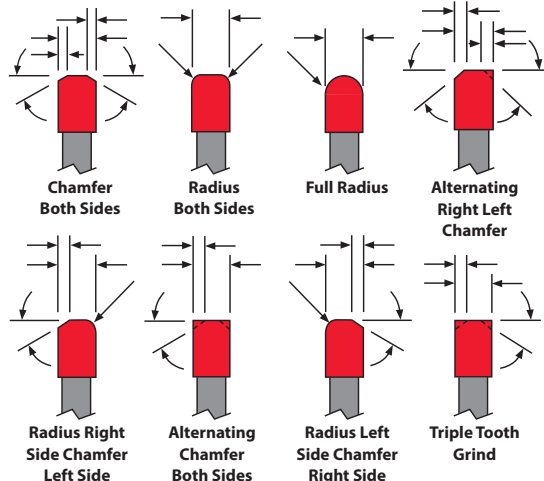
- Chamfer Angles can range from 0° to 45°
- Chamfer is measured off of the OD
- Maximum chamfer is the LESSER of 1/3 the width of the cutter OR .2656" length of angle when measured across the OD
- Chamfer Angle Tolerance: +/- 1/2°
- Chamfers greater than 45° must be quoted

Specify side for radius or chamfer



Corner Radius or Chamfer on BOTH Sides OR a Full Radius

Alternating Chamfers add 5%



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH FINISHED WITH RADII, CHAMFERS OR COMBO					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
5	0.0704 - 0.0859	255942R2	.0691	\$680.15	\$619.05	\$610.45	\$606.05	\$603.35	\$602.00
5	0.0860 - 0.1015	255944R2	.0848	603.20	541.95	533.50	529.05	526.35	525.00
5	0.1016 - 0.1171	255946R2	.1004	649.45	588.30	579.75	575.30	572.75	571.25
5	0.1172 - 0.1406	255948R2	.1160	589.65	528.50	520.00	515.45	512.95	511.45
5	0.1407 - 0.1718	255950R2	.1562	604.60	543.45	534.95	530.55	527.90	526.35
5	0.1719 - 0.2031	255952R2	.1875	629.95	568.85	560.20	555.90	553.20	551.85
5	0.2032 - 0.2343	255954R2	.2188	655.05	594.15	585.50	581.10	578.50	577.05
5	0.2344 - 0.2812	255956R2	.2500	680.25	619.10	610.50	606.20	603.65	602.20
5	0.2813 - 0.3437	255958R2	.3125	722.95	661.95	653.45	648.90	646.20	644.85
5	0.3438 - 0.4062	255960R2	.3750	768.55	707.30	698.90	694.35	691.70	690.40
5	0.4063 - 0.4687	255962R2	.4375	804.10	742.85	734.25	730.00	727.30	725.90
5	0.4688 - 0.5312	255964R2	.5000	839.55	778.45	769.95	765.55	762.80	761.35



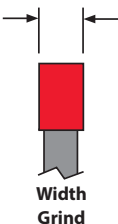
6" CARBIDE TIPPED MILLING CUTTERS

Width grinds between .0704" and .5312"

TYPE 2559 - MULTI-PURPOSE

Cutter Notes (All cutters on page)

- 18 Teeth
- C-2(m) Carbide
- 5° Positive Radial Rake
- Width Tolerance: +.001"/-.000"
- OD tolerance: +.0313"/-.000"
- 1" Arbor hole +.001"/-.000"
- ANSI standard keyway dimensions
- Add 5% to grind the hub width thinner
- Add 5% to match OD's on cutter sets within .001"
- Not designed to be used on heat treated materials greater than 363 Brinell (39RC)



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED TO DECIMAL SIZE					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
6	0.0704-0.0859	255966D	.0681	\$706.55	\$669.70	\$663.10	\$659.65	\$657.50	\$609.10
6	0.0860-0.1015	255968D	.0838	658.30	621.50	614.85	611.45	609.25	560.90
6	0.1016-0.1171	255970D	.0994	708.65	671.90	665.10	661.65	659.65	611.15
6	0.1172-0.1406	255972D	.1150	674.25	637.55	630.95	627.45	625.35	577.00
6	0.1407-0.1718	255974D	.1562	699.45	662.85	656.20	652.65	650.60	602.20
6	0.1719-0.2031	255976D	.1875	724.80	687.95	681.45	677.75	675.65	627.35
6	0.2032-0.2343	255978D	.2188	749.95	713.15	706.55	703.05	700.90	652.60
6	0.2344-0.2812	255980D	.2500	784.80	748.10	741.30	737.85	735.90	687.40
6	0.2813-0.3437	255982D	.3125	815.55	778.75	772.15	768.65	766.60	718.15
6	0.3438-0.4062	255984D	.3750	843.20	806.30	799.75	796.25	794.15	745.70
6	0.4063-0.4687	255990D	.4375	878.65	841.85	835.25	831.70	829.65	781.25
6	0.4688-0.5312	255992D	.5000	914.15	877.40	870.75	867.30	865.20	816.75

Corner Radius or Chamfer on ONE Side

TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH - FINISHED WITH RADIUS OR CHAMFER					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
6	0.0704-0.0859	255966R1	.0681	\$729.05	\$676.15	\$668.70	\$665.00	\$662.60	\$661.40
6	0.0860-0.1015	255968R1	.0838	680.85	627.95	620.55	616.75	614.45	613.25
6	0.1016-0.1171	255970R1	.0994	731.25	678.25	670.80	666.95	664.60	663.45
6	0.1172-0.1406	255972R1	.1150	696.95	643.95	636.50	632.70	630.45	629.20
6	0.1407-0.1718	255974R1	.1562	722.20	669.30	661.75	658.10	655.70	654.45
6	0.1719-0.2031	255976R1	.1875	747.40	694.45	687.05	683.15	680.85	679.70
6	0.2032-0.2343	255978R1	.2188	772.60	719.70	712.35	708.30	706.15	704.90
6	0.2344-0.2812	255980R1	.2500	807.45	754.55	747.10	743.35	740.95	739.65
6	0.2813-0.3437	255982R1	.3125	838.15	785.20	777.90	774.05	771.70	770.40
6	0.3438-0.4062	255984R1	.3750	865.70	812.85	805.45	801.55	799.30	798.10
6	0.4063-0.4687	255990R1	.4375	901.25	848.45	841.00	837.20	834.75	833.60
6	0.4688-0.5312	255992R1	.5000	936.90	883.90	876.45	872.65	870.40	869.05

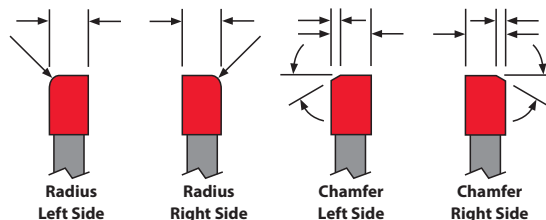
Radius Notes

- Maximum radius on one side is .2656"
- Full radius and maximum radius on both sides is 1/2 the width of the cutter
- A non-tangent radii must be quoted

Chamfer Notes

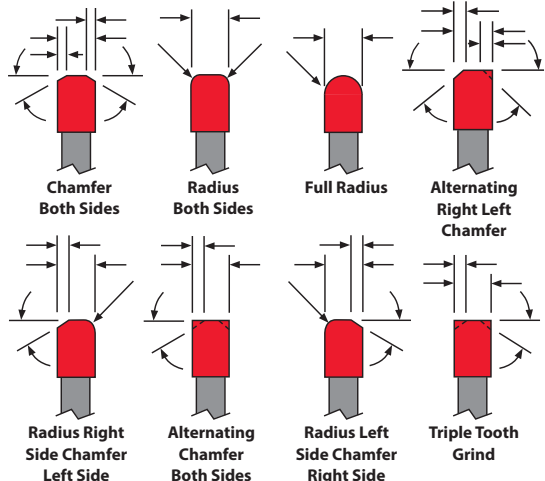
- Chamfer Angles can range from 0° to 45°
- Chamfer is measured off of the OD
- Maximum chamfer is the LESSER of 1/3 the width of the cutter OR .2656" length of angle when measured across the OD
- Chamfer Angle Tolerance: +/- 1/2°
- Chamfers greater than 45° must be quoted

Specify side for radius or chamfer



Corner Radius or Chamfer on BOTH Sides OR a Full Radius

Alternating Chamfers add 5%



TOOL DIAM.	DECIMAL SIZE WIDTH RANGE	1" ARBOR EDP NO.	HUB WIDTH	PRICE EACH FINISHED WITH RADIUS, CHAMFERS OR COMBO					
				1 PC.	2 PC.	3 PC.	4 PC.	5 PC.	6 PC.
6	0.0704-0.0859	255966R2	.0681	\$752.25	\$689.10	\$680.25	\$675.65	\$672.90	\$671.35
6	0.0860-0.1015	255968R2	.0838	704.00	640.90	632.05	627.50	624.75	623.15
6	0.1016-0.1171	255970R2	.0994	754.40	691.15	682.30	677.75	674.95	673.55
6	0.1172-0.1406	255972R2	.1150	720.15	657.00	648.10	643.55	640.80	639.25
6	0.1407-0.1718	255974R2	.1562	745.30	682.15	673.30	668.70	666.00	664.50
6	0.1719-0.2031	255976R2	.1875	770.40	707.30	698.50	694.00	691.25	689.75
6	0.2032-0.2343	255978R2	.2188	795.65	732.60	723.75	719.20	716.40	714.95
6	0.2344-0.2812	255980R2	.2500	830.55	767.40	758.55	753.95	751.15	749.80
6	0.2813-0.3437	255982R2	.3125	861.20	798.20	789.35	784.80	782.00	780.50
6	0.3438-0.4062	255984R2	.3750	888.75	825.75	816.90	812.40	809.60	808.15
6	0.4063-0.4687	255990R2	.4375	924.40	861.20	852.45	847.90	845.10	843.65
6	0.4688-0.5312	255992R2	.5000	959.95	896.80	888.00	883.50	880.75	879.25



BRAZED SINGLE POINT TOOLS

CARBIDE TIPPED - 883/PREMIUM C2 FOR CAST IRON & NON-FERROUS
370/PREMIUM C5-C6 FOR STEEL

FINISH GROUND - READY FOR USE



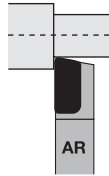
AR

0° SIDE CUTTING EDGE ANGLE

For machining to a square shoulder

TOOL STYLE	883/PREMIUM C2*		370/PREMIUM C5-C6*		SHANK DIMENSIONS			STD. PKG. QTY.
	EDP NO.	PRICE	EDP NO.	PRICE	W	H	L	
AR-4	211104	\$13.50	211204	\$9.85	1/4	1/4	2	12
AR-5	211105	11.95	211205	10.50	5/16	5/16	2 1/4	12
AR-6	211106	12.15	211206	10.70	3/8	3/8	2 1/2	12
AR-8	211108	11.20	211208	11.20	1/2	1/2	3 1/2	12
AR-10	211110	16.70	211210	15.45	5/8	5/8	4	12
AR-12	211112	21.40	211212	19.15	3/4	3/4	4 1/2	12
AR-16	211116	39.25	211216	38.25	1	1	7	6

*Some sizes not available in premium grade carbide. Prices subject to change.



For turning to a square shoulder



AL

0° SIDE CUTTING EDGE ANGLE

For machining to a square shoulder

TOOL STYLE	883/PREMIUM C2*		370/PREMIUM C5-C6*		SHANK DIMENSIONS			STD. PKG. QTY.
	EDP NO.	PRICE	EDP NO.	PRICE	W	H	L	
AL-4	211404	\$13.50	211504	\$9.85	1/4	1/4	2	12
AL-5	211405	11.95	211505	10.50	5/16	5/16	2 1/4	12
AL-6	211406	12.15	211506	10.70	3/8	3/8	2 1/2	12
AL-8	211408	11.20	211508	11.20	1/2	1/2	3 1/2	12
AL-10	211410	15.75	211510	15.45	5/8	5/8	4	12
AL-12	211412	20.40	211512	20.20	3/4	3/4	4 1/2	12
AL-16	211416	39.80	211516	39.80	1	1	7	6

*Some sizes not available in premium grade carbide. Prices subject to change.



BR

15° SIDE CUTTING EDGE ANGLE

For interrupted or irregular cuts

TOOL STYLE	883/PREMIUM C2*		370/PREMIUM C5-C6*		SHANK DIMENSIONS			STD. PKG. QTY.
	EDP NO.	PRICE	EDP NO.	PRICE	W	H	L	
BR-4	212104	\$13.50	212204	\$9.85	1/4	1/4	2	12
BR-5	212105	11.95	212205	10.50	5/16	5/16	2 1/4	12
BR-6	212106	12.15	212206	10.70	3/8	3/8	2 1/2	12
BR-7	212107	13.15	212207	11.65	7/16	7/16	3	12
BR-8	212108	11.20	212208	11.20	1/2	1/2	3 1/2	12
BR-10	212110	16.70	212210	15.45	5/8	5/8	4	12
BR-12	212112	21.40	212212	19.15	3/4	3/4	4 1/2	12
BR-16	212116	39.25	212216	38.25	1	1	7	6

*Some sizes not available in premium grade carbide. Prices subject to change.



For turning where square shoulder is not required



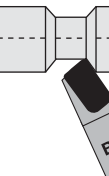
BL

15° SIDE CUTTING EDGE ANGLE

For interrupted or irregular cuts

TOOL STYLE	883/PREMIUM C2*		370/PREMIUM C5-C6*		SHANK DIMENSIONS			STD. PKG. QTY.
	EDP NO.	PRICE	EDP NO.	PRICE	W	H	L	
BL-4	212404	\$13.50	212504	\$9.85	1/4	1/4	2	12
BL-5	212405	11.95	212505	10.50	5/16	5/16	2 1/4	12
BL-6	212406	12.15	212506	10.70	3/8	3/8	2 1/2	12
BL-7	212407	13.15	212507	11.65	7/16	7/16	3	12
BL-8	212408	11.20	212508	11.20	1/2	1/2	3 1/2	12
BL-10	212410	15.75	212510	15.45	5/8	5/8	4	12
BL-12	212412	20.40	212512	20.20	3/4	3/4	4 1/2	12
BL-16	212416	39.80	212516	39.80	1	1	7	6

*Some sizes not available in premium grade carbide. Prices subject to change.



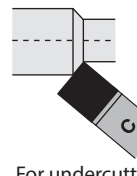
C

0° SQUARE NOSE

No nose radius

TOOL STYLE	883/PREMIUM C2*		370/PREMIUM C5-C6*		SHANK DIMENSIONS			STD. PKG. QTY.
	EDP NO.	PRICE	EDP NO.	PRICE	W	H	L	
C-4	213704	\$8.90	213804	\$8.90	1/4	1/4	2	12
C-5	213705	9.80	213805	9.45	5/16	5/16	2 1/4	12
C-6	213706	12.70	213806	10.50	3/8	3/8	2 1/2	12
C-7	213707	9.70	213807	13.40	7/16	7/16	3	12
C-8	213708	15.60	213808	14.45	1/2	1/2	3 1/2	12
C-10	213710	17.55	213810	19.15	5/8	5/8	4	12
C-12	213712	24.25	213812	27.50	3/4	3/4	4 1/2	12
C-16	213716	50.30	213816	48.30	1	1	7	6

*Some sizes not available in premium grade carbide. Prices subject to change.



For undercutting and chamfering



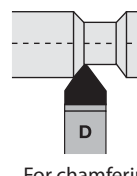
D

40° SIDE CUTTING EDGE ANGLE

80° pointed nose

TOOL STYLE	883/PREMIUM C2*		370/PREMIUM C5-C6*		SHANK DIMENSIONS			STD. PKG. QTY.
	EDP NO.	PRICE	EDP NO.	PRICE	W	H	L	
D-4	214704	\$8.25	214804	\$8.25	1/4	1/4	2	12
D-5	214705	9.60	214805	9.85	5/16	5/16	2 1/4	12
D-6	214706	9.80	214806	10.55	3/8	3/8	2 1/2	12
D-7	214707	13.40	-	-	7/16	7/16	3	12
D-8	214708	12.85	214808	13.65	1/2	1/2	3 1/2	12
D-10	214710	18.00	214810	20.00	5/8	5/8	4	12
D-12	214712	25.80	214812	22.65	3/4	3/4	4 1/2	12
D-16	214716	38.30	214816	39.60	1	1	7	6

*Some sizes not available in premium grade carbide. Prices subject to change.



For chamfering

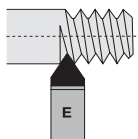


BRAZED SINGLE POINT TOOLS

CARBIDE TIPPED - 883/PREMIUM C2 FOR CAST IRON & NON-FERROUS
370/PREMIUM C5-C6 FOR STEEL

FINISH GROUND - READY FOR USE

TOOL STYLE	883/PREMIUM C2*		370/PREMIUM C5-C6*		SHANK DIMENSIONS			STD. PKG. QTY.
	EDP NO.	PRICE	EDP NO.	PRICE	W	H	L	
E-4	215704	\$8.25	215804	\$8.25	1/4	1/4	2	12
E-5	215705	9.05	215805	9.05	5/16	5/16	2 1/4	12
E-6	215706	9.40	215806	9.15	3/8	3/8	2 1/2	12
E-7	215707	14.55	215807	17.45	7/16	7/16	3	12
E-8	215708	21.55	215808	11.60	1/2	1/2	3 1/2	12
E-10	215710	17.90	215810	16.25	5/8	5/8	4	12
E-12	215712	22.25	215812	22.50	3/4	3/4	4 1/2	12
E-16	215716	39.00	215816	37.50	1	1	7	6



For cutting threads



**60° INCLUDED ANGLE;
30° SIDE CUTTING EDGE ANGLE**

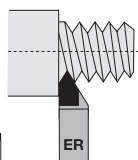
For threading, chamfering,
notching, or undercutting

*Some sizes not available in premium grade carbide. Prices subject to change.

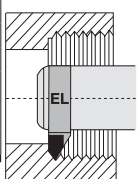


30° SIDE CUTTING EDGE ANGLE
Offset for threading or boring

TOOL STYLE	883/PREMIUM C2*		370/PREMIUM C5-C6*		SHANK DIMENSIONS			STD. PKG. QTY.
	EDP NO.	PRICE	EDP NO.	PRICE	W	H	L	
ER-4	215104	\$10.30	215204	\$8.25	1/4	1/4	2	12
ER-5	215105	10.30	215205	9.20	5/16	5/16	2 1/4	12
ER-6	215106	10.45	215206	9.45	3/8	3/8	2 1/2	12
ER-8	215108	18.45	215208	18.45	1/2	1/2	3 1/2	12
ER-10	215110	20.10	215210	20.10	5/8	5/8	4	12
ER-12	215112	21.75	215212	23.60	3/4	3/4	4 1/2	12



For cutting threads



For bore threading
in a 90° bar



30° SIDE CUTTING EDGE ANGLE
Offset for threading or boring

TOOL STYLE	883/PREMIUM C2*		370/PREMIUM C5-C6*		SHANK DIMENSIONS			STD. PKG. QTY.
	EDP NO.	PRICE	EDP NO.	PRICE	W	H	L	
EL-4	215404	\$11.85	215504	\$8.25	1/4	1/4	2	12
EL-5	215405	11.85	215505	11.35	5/16	5/16	2 1/4	12
EL-6	215406	11.85	215506	11.50	3/8	3/8	2 1/2	12
EL-8	215408	18.45	215508	20.25	1/2	1/2	3 1/2	12
EL-10	215410	20.10	215510	22.15	5/8	5/8	4	12
EL-12	215412	21.75	215512	23.60	3/4	3/4	4 1/2	12

*Some sizes not available in premium grade carbide. Prices subject to change.



WHY USE CARBIDE TIPPED TOOLS?

MORE COST EFFECTIVE THAN HIGH SPEED STEEL TOOLS

1. Carbide tipped tools retain their cutting edge hardness at high machining temperatures generated by high cutting speeds and feeds that reduce machining cycle time.
2. Carbide tipped tools improve surface finish and hold size far longer for better quality.
3. Carbide tipped tools last far longer because the carbide chip forming surface resists wear as the chip flows over the tools. This greatly reduces need for costly changes with increased scrap and rework.
4. Carbide tipped tools should always be used when machining highly abrasive materials.

USUALLY MORE COST EFFECTIVE THAN SOLID CARBIDE

1. Carbide tipped tools are far more durable than solid carbide tools. Under abnormal conditions the carbide may start to crack due to hard spots in the material being machined, incorrect feed rates or inadequate holding of workpiece. These cracks that shatter solid carbide tools are stopped in carbide tipped tools by the tough hardened alloy steel body - usually permitting the tool to complete the production run.
2. The carbide grade in carbide tipped tools can be selected wholly based on its cutting and wear characteristics rather than compromising for the carbide's structural strength, as is required for solid carbide tools. Some high cost specialty carbides necessary for aggressive machining of many tough alloys are not even available in solid carbide round form.
3. Although carbide tipped tools use higher quality more costly carbide, the overall cost is usually substantially less than solid carbide tools because only the thick cutting edge is carbide. The body and shank are made from less costly tough hardened alloy steel.

GENERAL INFORMATION

DISTRIBUTORS - Rock River Tool sells through industrial distributors who are your local supply, service and communication link with us.

SHIPPING - All shipments are normally sent UPS to the distributor. However, every day distributors request "next day delivery" or "drop shipments" to customers that must have the tools immediately.

ORDERING - The Rock River EDP number listed for each size of every tool type is the only description required when ordering. However, as a cross-check for possible copying errors, most orders also note a brief tool description.

MODIFICATIONS - Over 30% of the standard tools ordered include one or more simple modifications. Each catalog page lists the most commonly requested modifications for that type of tool. Rock River's modifications are competitively priced with prompt delivery.

COMMUNICATIONS - We prefer that all communications be directed through your local industrial distributor. However, in emergencies Rock River can be reached at:
Sales/Engineering: 1-800-345-8924
E-mail: sales@rockrivertool.com

QUALITY ASSURANCE - Rock River has a very comprehensive measurement instrument dimensional control system. We apply statistical techniques wherever appropriate to assure manufacturing process control and effective final inspections.

TOLERANCES - All Rock River's standard tools are manufactured to one or more of the following specifications, unless otherwise shown on selected sizes:
ASME/ANSI Standards
NAS 907 - National Aerospace Standards
USCTI - United States Cutting Institute
ISO - International Standard Organization

CARBIDE GRADES - All Rock River's standard tools are manufactured with correct proven grade of carbide for the intended applications. We only utilize carbide that is made by major reputable manufacturers.

TOOL PERFORMANCE - Although the tool's price is always important, the real measure of tool value is the tool's performance in the user's plant - machining piece parts to correct dimensions with proper surface finishes utilizing high feeds and speeds with a long tool life between grinds.

CHANGES - All specifications and dimensions are subject to revision without notice.

MADE IN USA



ROCK RIVER TOOL WILL GIVE YOU –

CONSISTENT HIGH QUALITY TOOLS

- Critical tool dimensions 100% inspected.
- Modern quality assurance system maintains consistent high quality tool production.
- Optimum performance tool geometries & carbide grades.
- Close tolerance tools will greatly reduce wear rates and maintain machined part quality.

SERVICE – PROMPT DELIVERY

- Most orders shipped same day received.
- Very large stock tool inventory reduces need for costly user & distributor inventories.
- No minimum orders.

LOWER TOOLING COST

- Improved cutting tool performance with much higher cutting speeds & feeds – far shorter machining cycle costs.
- Dramatic tool wear reduction results in much longer production runs with fewer tool changes & set-up scrap.
- Optional modifications of stocked standard tools eliminates need for costly special tools.
- Optional modifications reduce lead time for special tooling needs.

LIMITED WARRANTY

Rock River Tool, Inc. does not give any warranty on its products, except as follows: Rock River Tool, Inc. warrants to original equipment manufacturers, distributors and industrial and commercial users of its products that each new product manufactured or supplied by Rock River Tool, Inc. shall be free from defects in material and workmanship. Rock River Tool, Inc.'s sole obligation under this warranty is limited to furnishing, without additional charge, a replacement for, or at its option, repairing or issuing credit for any such product which shall within one year from the date of sale by Rock River Tool, Inc. be returned freight prepaid to Rock River Tool, Inc. and which upon inspection is determined by Rock River Tool, Inc. to be defective in materials or workmanship. The provisions of this warranty shall not apply to any product which has been subjected to misuse, improper operating conditions, machine set-up or application of cutting fluid or which has been repaired or altered if such repair or alteration in the judgement of Rock River Tool, Inc. would adversely affect performance of the product. Complete written information with respect to all such matters, including operating condition, machine set-up, cutting fluid, cutting speed and feed rate, must be furnished to Rock River Tool, Inc. as a prerequisite to its consideration of any claim or complaint under this warranty.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Rock River Tool, Inc. shall have no liability or responsibility on any claim of any kind, whether in contract, tort or otherwise, for any loss or damage arising out of, connected with, or resulting from the manufacture, sale, delivery or use of any product sold hereunder, in excess of the cost of replacement or repair provided herein.

IN NO EVENT SHALL ROCK RIVER TOOL, INC. BE LIABLE FOR ANY SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES. Rock River Tool, Inc. makes no other warranty, expressed or implied, except the warranty against defects in material and workmanship set forth above; and Rock River Tool, Inc. neither assumes nor authorizes any other person or entity to assume for it any other obligation or liability in connection with any of its products.

WARNING — Because cutting tools may shatter or break, government regulations require the use of safety glasses and other safety equipment at all times in the vicinity of cutting tool use. Grinding of solid carbide or carbide tipped tools will produce carbide and braze dust that may be hazardous to your health. Use adequate ventilation and read this applicable "Safety Data Sheets." For free "Safety Data Sheets", email Rock River Tool, Inc. at sales@rockrivertool.com.