

LAKE SHORE
CARBIDE .COM



AMERICAN MADE MATTERS



2013

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THREADMILLS UNC/UNF



UNC & UNF

Our premium carbide AlTiN coated thread mills have helical flute geometry. This dramatically reduces cutting pressure which, results in higher feed rates, faster cycle times, better surface finish and accuracy, and lower cost per hole.

All threadmills are AlTiN coated. **To order UNCOATED add the letter "B" to end of part number**

Part #	Thread	LOC	Cut Dia.	# of Flutes	OAL	Shank	List Price
2-56THRD	2-56	0.125	.065	3	2.0	1/8	\$77.22
4-40THRD	4-40	0.180	.085	3	2.0	1/8	\$77.22
6-32THRD	6-32	0.218	.100	3	2.0	1/8	\$75.37
8-32THRD	8-32	0.250	.115	3	2.0	1/8	\$75.37
8-36THRD	8-36	0.250	.115	3	2.0	1/8	\$75.37
10-24THRD	10-24	0.312	.120	3	2.0	3/16	\$75.86
10-32THRD	10-32	0.312	.120	3	2.0	3/16	\$75.86
1/4-20THRD	1/4-20	0.500	.180	3	2.5	3/16	\$85.01
1/4-28THRD	1/4-28	0.500	.180	3	2.5	3/16	\$85.01
5/16-18THRD	5/16-18	0.625	.240	3	2.5	1/4	\$99.55
5/16-20THRD	5/16-20	0.625	.240	3	2.5	1/4	\$99.55
5/16-24THRD	5/16-24	0.625	.240	3	2.5	1/4	\$99.55
3/8-16THRD	3/8-16	0.750	.290	4	3.0	5/16	\$132.28
3/8-24THRD	3/8-24	0.750	.290	4	3.0	5/16	\$132.28
7/16-14THRD	7/16-14	0.875	.340	4	3.0	3/8	\$122.89
7/16-20THRD	7/16-20	0.875	.340	4	3.0	3/8	\$122.89
1/2-13THRD	1/2-13	0.875	.350	4	3.5	3/8	\$133.89
1/2-20THRD	1/2-20	0.875	.350	4	3.5	3/8	\$133.89
9/16-12THRD	9/16-12	0.875	.370	4	3.5	1/2	\$158.41
9/16-18THRD	9/16-18	0.875	.370	4	3.5	1/2	\$158.41
9/16-32THRD	9/16-32	1.000	.495	4	3.5	1/2	\$178.40

THREADMILLS UNC/UNF



UNC & UNF (CONT)

A 20 pitch tool can be used to cut any 20 pitch thread as long as the threadmill has a long enough flute length (LOC) to complete the thread.

All tools are USA made from USA micrograin carbide. AlTiN coated.

To order UNCOATED add the letter "B" to end of part number

Part #	Thread	LOC	Cut Dia.	# of Flutes	OAL	Shank	List Price
5/8-11THRD	5/8-11	1.250	.470	5	3.5	1/2	\$168.84
5/8-18THRD	5/8-18	1.250	.470	5	3.5	1/2	\$168.84
3/4-10THRD	3/4-10	1.250	.495	5	3.5	1/2	\$168.84
3/4-16THRD	3/4-16	1.250	.495	5	3.5	1/2	\$168.84
7/8-9THRD	7/8-9	1.250	.620	5	3.5	5/8	\$188.52
7/8-14THRD	7/8-14	1.250	.620	5	3.5	5/8	\$188.52
1-8THRD	1-8	1.375	.620	5	4.0	3/4	\$223.38
1-12THRD	1-12	1.375	.620	5	4.0	3/4	\$223.38

THREAD PAC \$474.11 (Save 10%)

Produce 14 threads with 6 threadmills. AlTiN Coated

Same tool produces internal, external, left and right hand threads.

Comes in plastic container shown



PART # THREAD PAC		ONE EACH OF THE TOOLS BELOW STORED IN A PLASTIC CASE			PRICE \$399
SIZES	SHANK	CUTTING DIA	LOC	OAL	FLUTES
6-32	1/8	0.115	0.218	2	3
10-24	3/16	0.120	0.312	2	3
1/4-20	3/16	0.180	0.500	2 1/2	3
5/16-18	1/4	0.240	0.625	2 1/2	3
3/8-16	5/16	0.290	0.750	3	4
1/2-13	3/8	0.350	0.875	3 1/2	4

THREADMILLS NPT/NPTF



NPT & NPTF

The taper is ground on the tool eliminating the need to taper ream the hole. Helical flutes relieve cutting forces created by threadmilling. All threadmills are AlTiN coated. **To order UNCOATED add the letter "B" to end of part number**

NPT

Part #	Thread	LOC	Cut Dia.	# of Flutes	OAL	Shank	List Price
1/16NPTTHRD	1/16-27 NPT	0.437	.245	3	2.5	1/4	\$100.59
1/8NPTTHRD	1/8-27 NPT	0.437	.310	4	2.5	5/16	\$106.17
1/4NPTTHRD	1/4-18 NPT	0.625	.370	4	3.0	3/8	\$123.18
3/8NPTTHRD	3/8-18 NPT	0.625	.370	4	3.0	3/8	\$123.18
1/2NPTTHRD	1/2-14 NPT	0.875	.495	4	3.5	1/2	\$177.04
3/4NPTTHRD	3/4-14 NPT	0.875	.495	4	3.5	1/2	\$177.04
1NPTTHRD	1-11 1/2 NPT	1.125	.620	5	4.0	3/4	\$236.07
2.5NPTTHRD	2.5"- 6"-8 NPT	1.500	.995	5	5.0	1.0	\$414.55

Add the letter "B" to end of part number to order UNCOATED

NPTF

Part #	Thread	LOC	Cut Dia.	# of Flutes	OAL	Shank	List Price
1/16NPTFTHRD	1/16-27 NPTF	0.437	.245	3	2.5	1/4	\$100.59
1/8NPTFTHRD	1/8-27 NPTF	0.437	.310	4	2.5	5/16	\$106.17
1/4NPTFTHRD	1/4-18 NPTF	0.625	.370	4	3.0	3/8	\$123.18
3/8NPTFTHRD	3/8-18 NPTF	0.625	.370	4	3.0	3/8	\$123.18
1/2NPTFTHRD	1/2-14 NPTF	0.875	.495	4	3.5	1/2	\$177.04
3/4NPTFTHRD	3/4-14 NPTF	0.875	.495	4	3.5	1/2	\$177.04
1NPTFTHRD	1-11 1/2 NPTF	1.125	.620	5	4.0	3/4	\$236.07
2.5NPTFTHRD	2.5"- 6"-8 NPTF	1.500	.995	5	5.0	1.0	\$414.55

~ IF YOU DON'T SEE THE SIZE YOU NEED, CALL US FOR A QUOTE ~

THREADMILLS METRIC



METRIC

A complete line of premium quality solid carbide Metric Threadmills in stock and available for immediate delivery. All threadmills are AlTiN coated.

To order UNCOATED add the letter "B" to end of part number

Part #	Thread	LOC	Cut Dia.	# of Flutes	OAL	Shank	List Price
M3-0.50THRD	M3-0.50	0.180	.088	3	2.0	1/8	\$75.37
M4-0.70THRD	M4-0.70	0.250	.120	3	2.0	1/8	\$75.37
M4.5-0.75THRD	M4.5-0.75	0.250	.120	3	2.0	1/8	\$75.37
M5-0.80THRD	M5-0.80	0.312	.120	3	2.0	3/16	\$77.35
M6-1.00THRD	M6-1.00	0.500	.170	3	2.5	3/16	\$82.71
M8-0.75THRD	M8-0.75	0.625	.235	3	2.5	1/4	\$99.55
M8-1.00THRD	M8-1.00	0.625	.235	3	2.5	1/4	\$99.55
M8-1.25THRD	M8-1.25	0.625	.235	3	2.5	1/4	\$99.55
M10-1.00THRD	M10-1.00	0.750	.300	4	3.0	5/16	\$122.39
M10-1.25THRD	M10-1.25	0.750	.300	4	3.0	5/16	\$122.39
M10-1.50THRD	M10-1.50	0.750	.300	4	3.0	5/16	\$122.39
M12-1.00THRD	M12-1.00	0.875	.360	4	3.5	3/8	\$136.29
M12-1.25THRD	M12-1.25	0.875	.360	4	3.5	3/8	\$136.29
M12-1.50THRD	M12-1.50	0.875	.360	4	3.5	3/8	\$136.29
M12-1.75THRD	M12-1.75	0.875	.360	4	3.5	3/8	\$136.29
M14-1.50THRD	M14-1.50	0.875	.360	4	3.5	3/8	\$136.29
M16-2.00THRD	M16-2.00	1.250	.470	5	3.5	1/2	\$168.84
M18-1.50THRD	M18-1.50	1.250	.470	5	3.5	1/2	\$168.84
M18-2.50THRD	M18-2.50	1.250	.470	5	3.5	1/2	\$168.84
M20-3.00THRD	M20-3.00	1.250	.470	5	3.5	5/8	\$184.47

THREADMILLS BSPP & BSPT

BSPP & BSPT

We stock British Standard Pipe Parallel and British Standard Pipe Tapered, also known as "Whitworth Threadform". All threadmills are AlTiN coated.



BSPP

Part #	Thread	LOC	Cut Dia.	# of Flutes	OAL	Shank	List Price
1/16BSPPTHRD	1/16-28	0.570	.240	3	2.5	1/4	\$114.32
1/8BSPPTHRD	1/8-28	0.570	.240	3	2.5	1/4	\$130.58
1/4BSPPTHRD	1/4-19	0.737	.430	4	3.0	7/16	\$136.99
3/8BSPPTHRD	3/8-19	0.737	.430	4	3.0	7/16	\$136.99
1/2BSPPTHRD	1/2-14	1.150	.620	5	3.5	5/8	\$222.59
3/4BSPPTHRD	3/4-14	1.150	.620	5	3.5	5/8	\$222.59
1BSPPTHRD	1-11	1.365	.745	5	4.0	3/4	\$287.20
2BSPPTHRD	2-11	1.365	.745	5	4.0	3/4	\$287.20

BSPT

Part #	Thread	LOC	Cut Dia.	# of Flutes	OAL	Shank	List Price
1/16BSPTTTHR	1/16-28	0.393	.240	3	2.5	1/4	\$114.32
1/8BSPTTTHR	1/8-28	0.393	.240	3	2.5	1/4	\$130.58
1/4BSPTTTHR	1/4-19	0.580	.430	4	3.0	7/16	\$136.99
3/8BSPTTTHR	3/8-19	0.580	.430	4	3.0	7/16	\$136.99
1/2BSPTTTHR	1/2-14	0.787	.620	5	3.5	5/8	\$222.59
3/4BSPTTTHR	3/4-14	0.787	.620	5	3.5	5/8	\$222.59
1BSPTTTHR	1-11	1.546	.745	5	4.0	3/4	\$287.20
2BSPTTTHR	2-11	1.546	.745	5	4.0	3/4	\$287.20

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THREADMILLS VARIABLE FLUTE



VARIABLE FLUTE

Our Variable Index/Variable Helix Threadmill increases production and reduces chatter/harmonics in tough materials. All threadmills are AlTiN coated.

VARIABLE FLUTE

Part #	Thread	LOC	Cut Dia.	# of Flutes	OAL	Shank	List Price
10-32VARITHRD	10-32	0.312	.120	3	2.0	3/16	\$92.81
1/4-20VARITHRD	1/4-20	0.500	.180	3	2.0	3/16	\$99.29
1/4-28VARITHRD	1/4-28	0.500	.180	3	2.0	3/16	\$99.29
5/16-18VARITHRD	5/16-18	0.625	.235	3	2.5	1/4	\$114.46
5/16-24VARITHRD	5/16-24	0.625	.235	3	2.5	1/4	\$114.46
3/8-16VARITHRD	3/8-16	0.750	.290	4	3.0	5/16	\$137.81
3/8-24VARITHRD	3/8-24	0.750	.290	4	3.0	5/16	\$137.81
7/16-14VARITHRD	7/16-14	0.875	.340	4	3.0	3/8	\$138.37
7/16-20VARITHRD	7/16-20	0.875	.340	4	3.0	3/8	\$152.14
1/2-13VARITHRD	1/2-13	0.875	.350	4	3.0	3/8	\$152.14
3/4-16VARITHRD	3/4-16	1.250	.495	4	3.5	1/2	\$182.21

COOLANT THRU for blind hole chip evacuation
Variable Index/Variable Helix. AlTiN coated.



Part #	Thread	LOC	Cut Dia.	# of Flutes	OAL	Shank	List Price
10-32COOLTHRD	10-32	0.312	.120	3	2.375	3/16	\$95.33
1/4-20COOLTHRD	1/4-20	0.500	.180	3	2.375	3/16	\$101.81
1/4-28COOLTHRD	1/4-28	0.500	.180	3	2.375	3/16	\$101.81
5/16-18COOLTHRD	5/16-18	0.625	.235	3	2.375	1/4	\$119.44
5/16-24COOLTHRD	5/16-24	0.625	.235	3	2.375	1/4	\$119.44
3/8-16COOLTHRD	3/8-16	0.750	.290	4	3.0	5/16	\$142.06
3/8-24COOLTHRD	3/8-24	0.750	.290	4	3.0	5/16	\$142.06
7/16-14COOLTHRD	7/16-14	0.875	.340	4	3.0	3/8	\$142.06
7/16-20COOLTHRD	7/16-20	0.875	.340	4	3.0	3/8	\$163.69
1/2-13COOLTHRD	1/2-13	0.875	.350	4	3.0	3/8	\$163.69
3/4-16COOLTHRD	3/4-16	1.250	.495	4	3.0	1/2	\$192.85

THREADMILLS NPS/NPSF



NPS & NPSF

We now stock National Pipe Straight standard and dryseal. All threadmills are AlTiN coated. **To order UNCOATED add the letter "B" to end of part number**

NPS

Part #	Thread	LOC	Cut Dia.	# of Flutes	OAL	Shank	List Price
1/8NPSTHRD	1/8-27 NPS	0.570	.240	3	2.5	1/4	\$116.20
1/4NPSTHRD	1/4-18 NPS	0.737	.430	4	3.0	7/16	\$153.30
3/8NPSTHRD	3/8-18 NPS	0.737	.430	4	3.0	7/16	\$153.30
1/2NPSTHRD	1/2-14 NPS	1.150	.620	5	3.5	5/8	\$227.50
3/4NPSTHRD	3/4-14 NPS	1.150	.620	5	3.5	5/8	\$227.50
1NPSTHRD	1"-2" -11 1/2 NPS	1.365	.745	5	4.0	3/4	\$266.20
2.5NPSTHRD	2.5" - 6" -8 NPS	1.365	.745	5	4.0	3/4	\$414.55

To order UNCOATED add the letter "B" to end of part number

NPSF

Part #	Thread	LOC	Cut Dia.	# of Flutes	OAL	Shank	List Price
1/8NPSFTHRD	1/8-27 NPSF	0.570	.240	3	2.5	1/4	\$116.20
1/4NPSFTHRD	1/4-18 NPSF	0.737	.430	4	3.0	7/16	\$153.30
3/8NPSFTHRD	3/8-18 NPSF	0.737	.430	4	3.0	7/16	\$153.30
1/2NPSFTHRD	1/2-14 NPSF	1.150	.620	5	3.5	5/8	\$227.50
3/4NPSFTHRD	3/4-14 NPSF	1.150	.620	5	3.5	5/8	\$227.50
1NPSFTHRD	1"-2" -11 1/2 NPSF	1.365	.745	5	4.0	3/4	\$266.20
2.5NPSFTHRD	2.5" - 6" -8 NPSF	1.365	.745	5	4.0	3/4	\$414.55

Due to fluctuating carbide costs, prices subject to change.

THREADMILLS SINGLE PROFILE

Single Profile Vari-Flute



Variable Flute Single Profile Threadmills have several flutes with only one 60 degree thread form. This lowers cutting pressure in difficult applications along with being able to produce many inch and metric thread sizes with one tool. All threadmills are AlTiN coated.

To order UNCOATED add the letter "B" to end of part number

Part #	Cut Dia	LOC	Neck Dia	# of Flutes	Shank	OAL	Thread Range	Price
2-SPTHRD	.064	5/32	.038	3	1/8	1-1/2	56 - 80	\$74.99
3-SPTHRD	.072	5/32	.040	3	1/8	1-1/2	48 - 72	\$74.99
4-SPTHRD	.080	1/8	.045	3	1/8	2	40 - 64	\$73.50
4L-SPTHRD	.080	1/4	.045	3	1/8	2	40 - 64	\$76.41
6-SPTHRD	.098	1/4	.050	3	1/8	2	32 - 64	\$73.50
6L-SPTHRD	.098	3/8	.050	4	1/8	2	32 - 64	\$76.41
8-SPTHRD	.120	5/16	.070	4	1/8	2	32 - 56	\$76.18
8L-SPTHRD	.120	1/2	.070	4	1/8	2	32 - 56	\$83.79
10-SPTHRD	.138	3/8	.075	4	3/16	2	24 - 56	\$79.71
10L-SPTHRD	.138	5/8	.075	4	3/16	2	24 - 56	\$87.08
12L-SPTHRD	.160	5/8	.095	4	3/16	2	24 - 56	\$83.79
1/4-SPTHRD	.180	1/2	.115	4	3/16	2	18 - 56	\$82.78
1/4L-SPTHRD	.180	3/4	.115	4	3/16	2	18 - 56	\$87.33
5/16-SPTHRD	.240	1/2	.160	4	1/4	2-1/2	16 - 48	\$79.01
5/16L-SPTHRD	.240	3/4	.160	4	1/4	2-1/2	16 - 48	\$83.79
3/8-SPTHRD	.300	3/4	.218	4	3/8	2-1/2	14 - 40	\$102.90
3/8L-SPTHRD	.300	1	.218	4	3/8	2-1/2	14 - 40	\$107.68
1/2-SPTHRD	.388	3/4	.250	4	1/2	3	12 - 32	\$118.58
1/2L-SPTHRD	.388	1-1/4	.250	4	1/2	3	12 - 32	\$123.60
3/4-SPTHRD	.495	1	.340	6	1/2	3	10 - 32	\$123.24
3/4L-SPTHRD	.495	1-3/8	.340	6	1/2	3	10 - 32	\$128.38

THREADMILLS HARDMILL



Hardmill Threadmill

This breakthrough design allows threadmilling in materials hardened up to 62 Rc. The Variable flutes, high hardness and heat resistant NACO coating allow you to mill threads in hardened steels that taps cannot cut.

Part #	Thread	LOC	Cut Dia	# of Flutes	OAL	Shank	Price
10-24HRDTHRD	10-24	.312	.120	3	2	3/16	\$105.64
10-32HRDTHRD	10-32	.312	.120	3	2	3/16	\$105.64
1/4-20HRDTHRD	1/4-20	.500	.180	3	2 1/2	3/16	\$113.84
1/4-28HRDTHRD	1/4-28	.500	.180	3	2 1/2	3/16	\$113.84
5/16-18HRDTHRD	5/16-18	.625	.235	3	2 1/2	1/4	\$131.16
5/16-24HRDTHRD	5/16-24	.625	.235	3	2 1/2	1/4	\$131.16
3/8-16HRDTHRD	3/8-16	.750	.290	4	3	5/16	\$157.38
3/8-24HRDTHRD	3/8-24	.750	.290	4	3	5/16	\$157.38
7/16-14HRDTHRD	7/16-14	.875	.340	4	3	3/8	\$179.12
7/16-20HRDTHRD	7/16-20	.875	.340	4	3	3/8	\$179.12
1/2-13HRDTHRD	1/2-13	.875	.350	4	3 1/2	3/8	\$183.25
5/8-11HRDTHRD	5/8-11	1.25	.470	4	3 1/2	1/2	\$208.32
3/4-16HRDTHRD	3/4-16	1.25	.495	4	3 1/2	1/2	\$210.38
3/4-10HRDTHRD	3/4-10	1.25	.495	4	3 1/2	1/2	\$210.38

List Price Catalog - Check Website For Current Pricing

HARDMILL THREADMILL TECHNICAL

HARDMILL THREADMILLING RECOMMENDATIONS

- Hardmill Threadmills should be run with air blast not coolant.
- Evacuate chips properly while milling. Recutting chips will damage cutter.
- Hardmill Threadmilling requires several small radial cuts or "step overs".
We recommend 7 passes for fine threads and 9 passes for coarse threads.
- Always cut feedrate by 50% when ramping in to the cut.
- Thread interpolation should spiral from bottom of thread in upward direction.

HOW TO CALCULATE HARDMILL THREADMILL RADIAL PASSES

EXAMPLE THREAD = 1/4-28

MAJOR THREAD DIAMETER YOU ARE CUTTING = .250

MINOR HOLE DIAMETER = .213

.250 - .213 = .037 TOTAL STOCK BEING REMOVED

.037 / 2 = .0185 STOCK PER SIDE BEING REMOVED

MULTIPLY .0185 x RECOMMENDED PERCENTAGES FOR APPROXIMATE RADIAL DEPTH OF CUT. ROUND NUMBERS WHERE NECESSARY.

(RADIAL DEPTH OF CUT IN X OR Y)

1ST PASS = .0185 X 23% = .0045 (add any leftover to first pass)

2ND PASS = .0185 X 23% = .004

3RD PASS = .0185 X 16% = .003

4TH PASS = .0185 X 16% = .003

5TH PASS = .0185 X 11% = .002

6TH PASS = .0185 X 11% = .002

7TH PASS = FREE PASS

Hardmill Threadmill Recommendations

Material	Tool Steel (-55HRC) AISI H13 ETC		Hardened Steel (55-60HRC) AISI D2 ETC		Hardened Steel (60-65HRC) AISI D2 ETC	
	SFM	CHIP LOAD PER TOOTH	SFM	CHIP LOAD PER TOOTH	SFM	CHIP LOAD PER TOOTH
DIA	600/700	.0006/.002	350/400	.0005-.0015	175/225	.0005-.001
0.150						
0.180						
0.235		.001-.0025		.001-.002		.0008/.0018
0.285						
0.305						
0.335						
0.350	.0015-.003	.0012-.0025	.001/.002			
0.495						

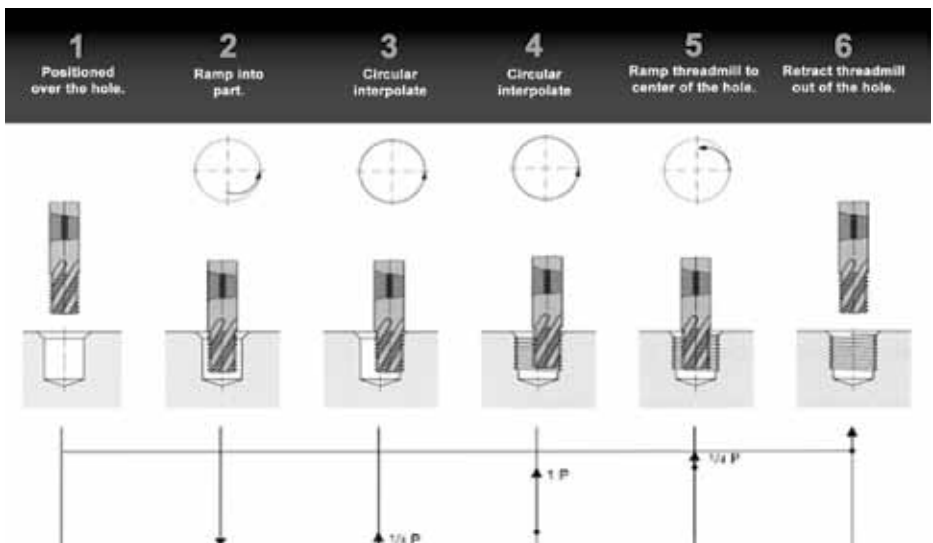
STANDARD THREADMILL TECHNICAL

MULTIPLE PASSES RECOMMENDED FOR THREADING STEEL
 ALWAYS CUT FEEDRATE BY 50% WHEN RAMPING IN TO THE CUT
 DO NOT RECUT CHIPS - COOLANT BLAST RECOMMENDED
 A THREADMILL CAN PRODUCE VARIOUS SIZES WITH THE SAME PITCH

Standard Threadmill Feedrate Calculator (inches/tooth)

Tool Cutting Diameter Inches P/Tooth

MATERIAL	SFM	1/8	3/16	1/4	5/16	3/8	1/2	5/8
Aluminum	800-1400	.0005-.001	.001-.0015	.0015-.0025	.002-.003	.003-.0045	.0035-.0055	.005-.007
Magnesium	800-1400	.0005-.001	.001-.0015	.0015-.0025	.002-.003	.003-.0045	.0035-.0055	.005-.007
Brass	600-800	.0005-.001	.001-.0015	.0015-.0025	.002-.003	.003-.0045	.0035-.0045	.005-.006
Bronze	500-600	.0005-.001	.001-.0015	.0015-.0025	.002-.003	.003-.0045	.0035-.0045	.005-.006
Hard Bronze	200-300	.0004-.0008	.0007-.0012	.001-.002	.001-.002	.0015-.0025	.002-.003	.003-.004
Low Alloy Steel	350-500	.0005-.001	.001-.0015	.0015-.0025	.002-.003	.0025-.0035	.003-.004	.004-.005
High Alloy Steel	250-400	.0003-.0006	.0005-.001	.0008-.0015	.001-.002	.0015-.0025	.002-.003	.003-.004
Stainless	150-250	.0004-.0008	.0006-.001	.001-.0015	.0015-.002	.0015-.0030	.002-.0035	.003-.004
Cast Iron - Soft	250-350	.0004-.0008	.0007-.0013	.0007-.0013	.0015-.002	.002-.003	.002-.004	.003-.005
Cast Iron - Hard	200-300	.0003-.0006	.0005-.001	.0008-.0015	.001-.002	.0015-.0025	.002-.003	.003-.004
Titanium	80-150	.0003-.0006	.0005-.001	.0008-.0015	.001-.002	.0015-.0025	.0015-.0025	.002-.0035



NOTES

VARIABLE FLUTE FOR ALUMINUM

STANDARD

Variable Flute for Aluminum (VFA)



2 FL	3 FL	Tool Dia	LOC	Shank	Corner Rad	OAL	Price
350018X	360018X	1/8	1/2	1/8	.005	1 1/2	\$21.20
350316X	360316X	3/16	5/8	3/16	.005	2	\$28.34
350014X	360014X	1/4	3/4	1/4	.005	2 1/2	\$39.41
350516X	360516X	5/16	3/4	5/16	.005	2 1/2	\$48.55
350038X	360038X	3/8	1	3/8	.005	2 1/2	\$57.50
350716X	360716X	7/16	1	7/16	.005	2 1/2	\$65.77
350012X	360012X	1/2	1 1/4	1/2	.005	3	\$74.42
350058X	360058X	5/8	1 5/8	5/8	.005	3 1/2	\$123.65
350034X	360034X	3/4	1 3/4	3/4	.005	4	\$186.92
350001X	360001X	1	1 3/4	1	.005	4	\$294.01



ROUGHER/FINISHER GEOMETRY

2 FL	3 FL	Tool Dia	LOC	Shank	Corner Rad	OAL	Price
350018XRF	360018XRF	1/8	1/2	1/8	.005	1 1/2	\$25.19
350316XRF	360316RFX	3/16	5/8	3/16	.005	2	\$32.33
350014XRF	360014RFX	1/4	3/4	1/4	.005	2 1/2	\$44.47
350516XRF	360516RFX	5/16	3/4	5/16	.005	2 1/2	\$54.71
350038XRF	360038RFX	3/8	1	3/8	.005	2 1/2	\$64.88
350012XRF	360012XRF	1/2	1 1/4	1/2	.005	3	\$83.47
350058XRF	360058XRF	5/8	1 5/8	5/8	.005	3 1/2	\$145.36
350034RFX	360034XRF	3/4	1 3/4	3/4	.005	4	\$205.59
350001RFX	360001XRF	1	1 3/4	1	.005	4	\$326.08

VARIABLE FLUTE FOR ALUMINUM

STUB

Variable Flute for Aluminum (VFA)



3 FL	Tool Dia	LOC	Shank	Corner Rad	OAL	Price
360018STX	1/8	1/4	1/8	.005	1 1/2	\$21.20
360316STX	3/16	5/16	3/16	.005	2	\$28.34
360014STX	1/4	3/8	1/4	.005	2	\$39.41
360516STX	5/16	3/8	5/16	.005	2	\$48.55
360038STX	3/8	1/2	3/8	.005	2	\$57.50
360012STX	1/2	3/4	1/2	.005	3	\$74.42

VARIABLE FLUTE ENDMILLS FOR ALUMINUM

Our own unique geometry includes variable helix multi index flutes eliminating vibration and harmonics. A highly polished flute gullet improves chip evacuation. A .005 corner radius extends tool life, and Zirconium Nitride (Zrn) coating adds hardness and lubricity.

This design can be used to rough, finish, slot or profile. Our geometry allows heavy chip load per tooth for maximum material removal and unmatched performance in aluminum, brass, copper and plastics.

VARIABLE FLUTE FOR ALUMINUM

LONG LENGTH



2 FL	3 FL	Tool Dia	LOC	Shank	Corner Rad	OAL	Price
350014LX	360014LX	1/4	1 1/4	1/4	.005	3	\$52.31
350516LX	360516LX	5/16	1 3/8	5/16	.005	3	\$63.14
350038LX	360038LX	3/8	1 1/2	3/8	.005	3 1/2	\$74.91
350012LX	360012LX	1/2	2	1/2	.005	4	\$110.32
350058LX	360058LX	5/8	2 3/8	5/8	.005	5	\$168.17
350034LX	360034LX	3/4	2 1/2	3/4	.005	5	\$225.93
350001LX	360001LX	1	3	1	.005	6	\$336.18



LONG LENGTH ROUGHER/FINISHER

2 FL	3 FL	Tool Dia	LOC	Shank	Corner Rad	OAL	Price
350014LXRF	360014LXRF	1/4	1 1/4	1/4	.005	3	\$59.28
350516LXRF	360516LXRF	5/16	1 3/8	5/16	.005	3	\$70.99
350038LXRF	360038LXRF	3/8	1 1/2	3/8	.005	3 1/2	\$84.00
350012LXRF	360012LXRF	1/2	2	1/2	.005	4	\$123.82
350058LXRF	360058LXRF	5/8	2 3/8	5/8	.005	5	\$169.31
350034LXRF	360034LXRF	3/4	2 1/2	3/4	.005	5	\$252.85
350001LXRF	360001LXRF	1	3	1	.005	6	\$374.66

Tolerance – Diameter: +.000/-.002 Shank: -.0001/-.0003 Made from Submicrograin Carbide

VARIABLE FLUTE FOR ALUMINUM

SQUARE CORNER



2 FL	3 FL	Tool Dia	LOC	Shank	OAL	Price
320014X	330014X	1/4	3/4	1/4	2 1/2	\$37.68
320516X	330516X	5/16	3/4	5/16	2 1/2	\$47.52
320038X	330038X	3/8	1	3/8	2 1/2	\$56.50
320716X	330716X	7/16	1	7/16	3	\$64.98
320012X	330012X	1/2	1 1/4	1/2	3	\$73.49
320058X	330058X	5/8	1 5/8	5/8	3 1/2	\$122.40
320034X	330034X	3/4	1 3/4	3/4	4	\$185.63
320001X	330001X	1	1 3/4	1	4	\$292.15



SQUARE CORNER ROUGHER/FINISHER

2 FL	3 FL	Tool Dia	LOC	Shank	OAL	Price
320014XRF	330014XRF	1/4	3/4	1/4	2 1/2	\$43.67
320516XRF	330516XRF	5/16	3/4	5/16	2 1/2	\$53.51
320038XRF	330038XRF	3/8	1	3/8	2 1/2	\$63.49
320012XRF	330012XRF	1/2	1 1/4	1/2	3	\$81.47
320058XRF	330058XRF	5/8	1 5/8	5/8	3 1/2	\$143.36
320034XRF	330034XRF	3/4	1 3/4	3/4	4	\$203.60
320001XRF	330001XRF	1	1 3/4	1	4	\$324.08

Tolerance – Diameter: +.000/- .002 Shank: -.0001/- .0003 Made from Submicrograin Carbide

VARIABLE FLUTE FOR ALUMINUM

BALLNOSE



2 FL ZRN	Tool Dia	LOC	Shank	OAL	Price
340018X	1/8	1/2	1/8	1 1/2	\$29.18
340316X	3/16	5/8	3/16	2	\$36.32
340014X	1/4	3/4	1/4	2 1/2	\$50.58
340516X	5/16	3/4	5/16	2 1/2	\$61.12
340038X	3/8	1	3/8	2 1/2	\$74.26
340012X	1/2	1 1/4	1/2	3	\$103.75
340058X	5/8	1 5/8	5/8	3 1/2	\$148.80
340034X	3/4	1 3/4	3/4	4	\$207.88
340001X	1	1 3/4	1	4	\$307.98



BALLNOSE ROUGHER/FINISHER

2 FL ZRN	Tool Dia	LOC	Shank	OAL	Price
340018XRF	1/8	1/2	1/8	1 1/2	\$37.16
340316XRF	3/16	5/8	3/16	2	\$46.30
340014XRF	1/4	3/4	1/4	2 1/2	\$57.24
340516XRF	5/16	3/4	5/16	2 1/2	\$70.07
340038XRF	3/8	1	3/8	2 1/2	\$84.24
340012XRF	1/2	1 1/4	1/2	3	\$116.80
340058XRF	5/8	1 5/8	5/8	3 1/2	\$166.51
340034XRF	3/4	1 3/4	3/4	4	\$231.54
340001XRF	1	1 3/4	1	4	\$341.05

Tolerance – Diameter: +.000/-0.002 Shank: -.0001/-0.0003 Made from Submicrograin Carbide

VFA TECHNICAL DATA

VARIABLE FLUTE FOR ALUMINUM SPEEDS AND FEEDS

Slotting = 1 x Tool Diameter

Profiling = 1/2 x Tool Diameter

Materials	Brass/Bronze	Copper Alloys	Aluminum	Plastics
Diameter	(800-1500 SFM)	(800-1200 SFM)	(1600-2000 SFM)	(1200-1600 SFM)
1/4	.003 ipt	.003 ipt	.003 ipt	.006 ipt
5/16	.004 ipt	.004 ipt	.004 ipt	.008 ipt
3/8	.005 ipt	.005 ipt	.005 ipt	.010 ipt
1/2	.006 ipt	.006 ipt	.006 ipt	.012 ipt
5/8	.007 ipt	.007 ipt	.007 ipt	.014 ipt
3/4	.008 ipt	.008 ipt	.008 ipt	.016 ipt
1	.010 ipt	.010 ipt	.010 ipt	.020 ipt

ipt = inches per tooth

Coolant blast is beneficial.

Tools perform best when balanced.

These approximate numbers are a good starting point.

Due to fluctuating carbide costs, prices subject to change.

VARIABLE FLUTE FOR STEEL



STANDARD

Variable Flute For Steel (VFS). The heavy duty core construction combined with variable helix variable index design creates a rigid tool that runs virtually chatter free. Tools are center cutting, have .0005 - .0015 honed edge and are AlTiN Coated

Part # 4 FL	Cutter Dia	LOC	Shank	Corner Rad	OAL	Price
18MTMX	1/8	3/8	1/8	.010-.015	1 1/2	\$18.50
532MTMX	5/32	7/16	3/16	.010-.015	2	\$22.73
316MTMX	3/16	7/16	3/16	.010-.015	2	\$21.65
732MTMX	7/32	7/16	1/4	.015-.020	2 1/2	\$30.61
14MTMX	1/4	5/8	1/4	.015-.020	2 1/2	\$29.15
932MTMX	9/32	5/8	5/16	.015-.020	2 1/2	\$38.15
516MTMX	5/16	3/4	5/16	.015-.020	2 1/2	\$36.32
38MTMX	3/8	7/8	3/8	.015-.020	2 1/2	\$43.91
716MTMX	7/16	1	7/16	.015-.020	2 3/4	\$52.03
12MTMX	1/2	1	1/2	.025-.030	3	\$68.96
58MTMX	5/8	1 1/4	5/8	.030-.035	3 1/2	\$119.54
34MTMX	3/4	1 1/2	3/4	.030-.035	4	\$172.42
1MTMX	1	1 1/2	1	.030-.035	4	\$258.90



SQUARE CORNER

Part # 4 FL	Cutter Dia	LOC	Shank	OAL	Price
14MTMXSQ	1/4	5/8	1/4	2 1/2	\$29.15
516MTMXSQ	5/16	3/4	5/16	2 1/2	\$36.32
38MTMXSQ	3/8	7/8	3/8	2 1/2	\$43.91
716MTMXSQ	7/16	1	7/16	2 3/4	\$52.03
12MTMXSQ	1/2	1	1/2	3	\$68.96
58MTMXSQ	5/8	1 1/4	5/8	3 1/2	\$119.54
34MTMXSQ	3/4	1 1/2	3/4	4	\$172.42
1MTMXSQ	1	1 1/2	1	4	\$258.90

VARIABLE FLUTE FOR STEEL

STUB



Part # 4 FL	Cutter Dia	LOC	Shank	Corner Rad	OAL	Price
18MTMXST	1/8	7/32	1/8	.005-.010	1.5	\$17.68
532MTMXST	5/32	9/32	3/16	.005-.010	2	\$20.56
316MTMXST	3/16	5/16	3/16	.010-.015	2	\$19.69
732MTMXST	7/32	5/16	1/4	.015-.020	2	\$26.43
14MTMXST	1/4	3/8	1/4	.015-.020	2	\$25.31
932MTMXST	9/32	3/8	5/16	.015-.020	2	\$33.69
516MTMXST	5/16	3/8	5/16	.015-.020	2	\$32.51
38MTMXST	3/8	1/2	3/8	.015-.020	2	\$38.40
12MTMXST	1/2	5/8	1/2	.025-.030	2 1/2	\$57.71
58MTMXST	5/8	3/4	5/8	.030-.035	3	\$102.50
34MTMXST	3/4	7/8	3/4	.030-.035	4	\$161.24
1MTMXST	1	1	1	.030-.035	4	\$250.52

LONG VFS



Part # 4 FL	Cutter Dia	LOC	Shank	Corner Rad	OAL	Price
14MTMXL	1/4	1 1/4	1/4	.015-.020	3	\$45.90
38MTMXL	3/8	1 1/4	3/8	.015-.020	3	\$66.46
12MTMXL	1/2	2	1/2	.025-.030	4	\$104.66
58MTMXL	5/8	2 1/4	5/8	.030-.035	5	\$167.31
34MTMXL	3/4	2 1/4	3/4	.030-.035	5	\$236.89

List Price Catalog - Check Website For Current Pricing

Tolerance – Diameter: +.000/-0.002 Shank: -.0001/-0.0003 Made from Submicrograin Carbide

VARIABLE FLUTE FOR STEEL

BALLNOSE VFS



Part # 4 FL	Cutter Dia	LOC	Shank	OAL	Price
18MTMXB	1/8	3/8	1/8	1 1/2	\$25.19
532MTMXB	5/32	7/16	3/16	2	\$29.75
316MTMXB	3/16	7/16	3/16	2	\$28.34
732MTMXB	7/32	7/16	1/4	2 1/2	\$38.01
14MTMXB	1/4	5/8	1/4	2 1/2	\$36.18
932MTMXB	9/32	5/8	5/16	2 1/2	\$44.14
516MTMXB	5/16	3/4	5/16	2 1/2	\$42.03
38MTMXB	3/8	7/8	3/8	2 1/2	\$48.02
716MTMXB	7/16	1	7/16	2 3/4	\$58.02
12MTMXB	1/2	1	1/2	3	\$85.46
58MTMXB	5/8	1 1/4	5/8	3 1/2	\$141.37
34MTMXB	3/4	1 1/2	3/4	4	\$201.60
1MTMXB	1	1 1/2	1	4	\$304.13



LONG REACH VFS

Part # 4 FL	Cutter Dia	LOC	Shank	Corner Rad	OAL	Price
14MTMX2I	1/4	5/8	1/4	.015-.020	4	\$46.64
38MTMX2I	3/8	7/8	3/8	.015-.020	4	\$66.18
12MTMX2I	1/2	1	1/2	.025-.030	6	\$119.29
58MTMX2I	5/8	1 1/4	5/8	.030-.035	6	\$184.06
34MTMX2I	3/4	1 1/2	3/4	.030-.035	6	\$282.43

Tolerance – Diameter: +.000/-.002 Shank: -.0001/-.0003 Made from Submicrograin Carbide

VARIABLE FLUTE FOR STEEL

Profile Width = 1/4 x Diameter Slotting Depth = 1 x Diameter

Materials	Steel	Cast Iron	Tool Steel	Steel	Cast Iron	Tool Steel
Diameter	600-750 SFM	500-650 SFM	425-525 SFM	475-660 SFM	400-550 SFM	325-425 SFM
1/4	.0014	.0014	.0013	.0012	.0013	.0011
5/16	.0017	.0017	.0016	.0013	.0016	.0013
3/8	.002	.0022	.002	.0016	.002	.0015
1/2	.0026	.0029	.0025	.0023	.0025	.002
5/8	.0028	.0032	.0028	.0024	.0028	.0022
3/4	.0032	.0036	.0031	.0025	.0031	.0025
1	.0038	.0043	.0038	.0032	.0038	.0032

NOTE:

- These are approximate numbers, a good starting point.
- Coolant application is an important part of using the variable flute geometries.
- Tools perform best when balanced.

WARNING – Due to the high metal removal rates of the VFS tools, it is necessary to make all work holding components as rigid as possible.

List Price Catalog - Current Pricing On Our Website

VARIABLE FLUTE FOR STAINLESS

5 FLUTE



The center cutting 5 flute variable helix cutter is designed for use in stainless steels and exotic materials. This cutter will reduce work hardening and impact resistance common to high strength materials. This tool can be used for roughing and finishing with reduced harmonics and longer tool life. AlTiN coated

STANDARD

Part # 5 FL	Cutter Dia	LOC	Shank	Corner Rad	OAL	Price
18MTMX5	1/8	3/8	1/8	.010-.015	1 1/2	\$18.50
532MTMX5	5/32	7/16	3/16	.010-.015	2	\$22.73
316MTMX5	3/16	7/16	3/16	.010-.015	2	\$21.65
732MTMX5	7/32	7/16	1/4	.015-.020	2 1/2	\$30.61
14MTMX5	1/4	5/8	1/4	.015-.020	2 1/2	\$29.15
932MTMX5	9/32	5/8	5/16	.015-.020	2 1/2	\$38.15
516MTMX5	5/16	3/4	5/16	.015-.020	2 1/2	\$36.32
38MTMX5	3/8	7/8	3/8	.015-.020	2 1/2	\$43.91
716MTMX5	7/16	1	7/16	.015-.020	2 3/4	\$52.03
12MTMX5	1/2	1	1/2	.025-.030	3	\$68.96
58MTMX5	5/8	1 1/4	5/8	.030-.035	3 1/2	\$119.54
34MTMX5	3/4	1 1/2	3/4	.030-.035	4	\$172.42
1MTMX5	1	1 1/2	1	.030-.035	4	\$258.90

List Price Catalog - Check Website For Current Pricing

Tolerance – Diameter: +.000/- .002 Shank: -.0001/- .0003 Made from Submicrograin Carbide

VFSS STUB & TECHNICAL DATA



STUB

5 FL Part #	Cut Dia	Shank	LOC	Corner Rad	OAL	Price
18MTMX5S	1/8	1/8	7/32	.010-.015	1.5	\$17.68
532MTMX5S	5/32	3/16	9/32	.010-.015	2	\$20.56
316MTMX5S	3/16	3/16	5/16	.010-.015	2	\$19.69
732MTMX5S	7/32	1/4	5/16	.015-.020	2	\$26.43
14MTMX5S	1/4	1/4	3/8	.015-.020	2	\$25.31
932MTMX5S	9/32	5/16	3/8	.015-.020	2	\$33.69
516MTMX5S	5/16	5/16	3/8	.015-.020	2	\$32.51
38MTMX5S	3/8	3/8	1/2	.015-.020	2	\$38.40
716MTMX5S	7/16	7/16	5/8	.015-.020	2 1/2	\$57.71
12MTMX5S	1/2	1/2	5/8	.025-.030	3	\$68.96

STARTING RECOMMENDED SPEEDS AND FEEDS

Profile

Slotting

Radial Depth = .5 x Diameter
Axial Depth = 1 x Diameter

Axial Depth = .5 x Diameter

Materials	Stainless	Stainless	Stainless	Stainless	Stainless	Stainless
	300 Series 304, 310, 316	400 Series 409, 430, 436	15-5 17-4PH	300 Series 304, 310, 316	400 Series 409, 430, 436	15-5 17-4PH
Diameter	300 SFM	250 SFM	250 SFM	240 SFM	200 SFM	200 SFM
1/4	.001	.001	.001	.0008	.0008	.0008
5/16	.0015	.0015	.0014	.0012	.0012	.0011
3/8	.002	.002	.0019	.0016	.0016	.0015
1/2	.0025	.0025	.0022	.002	.002	.0018
5/8	.003	.003	.0027	.0025	.0025	.0022
3/4	.0035	.0035	.003	.0028	.0028	.0024
1	.0042	.0042	.004	.0034	.0034	.0032

NOTE:

- These are approximate numbers, a good starting point.
- Coolant application is important.
- Tools perform best when balanced.

HARDMILLING END MILLS



HARDMILLING

Lakeshore Hard Milling End Mills utilize a thicker carbide core, unique hard milling geometry, and nACo coating. nACo offers an extremely high nanohardness, and a very high hot hardness (1200 degrees Celsius) which, makes this tool the right choice for your hard milling project. Non-center cutting 6 Flute.

SQUARE CORNER 6 FLUTE

Part #	Tool Dia	LOC	Shank	OAL	Price
18HRDML	1/8	3/8	1/8	1 1/2	\$26.78
532HRDML	5/32	7/16	3/16	2	\$32.34
316HRDML	3/16	1/2	3/16	2	\$31.17
14HRDML	1/4	5/8	1/4	2 1/2	\$38.68
516HRDML	5/16	3/4	5/16	2 1/2	\$49.52
38HRDML	3/8	7/8	3/8	2 1/2	\$60.49
12HRDML	1/2	1	1/2	3	\$86.46
58HRDML	5/8	1 1/4	5/8	3 1/2	\$132.88
34HRDML	3/4	1 5/8	3/4	4	\$186.63



CORNER RADIUS 6 FLUTE

Part #	Tool Dia	LOC	Shank	Corner Rad	OAL	Price
18HRDMLR	1/8	3/8	1/8	.010R	1 1/2	\$29.49
532HRDMLR	5/32	7/16	3/16	.010R	2	\$36.10
316HRDMLR	3/16	1/2	3/16	.010R	2	\$35.63
14HRDMLR	1/4	5/8	1/4	.010R	2 1/2	\$42.89
516HRDMLR	5/16	3/4	5/16	.010R	2 1/2	\$56.50
38HRDMLR	3/8	7/8	3/8	.010R	2 1/2	\$66.08
12HRDMLR	1/2	1	1/2	.020R	3	\$93.45
58HRDMLR	5/8	1 1/4	5/8	.020R	3 1/2	\$144.06
34HRDMLR	3/4	1 5/8	3/4	.030R	4	\$202.02

Tolerance – Diameter: +.000/-0.002 Shank: -.0001/-0.0003 Made from Submicrograin Carbide

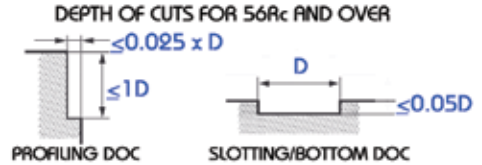
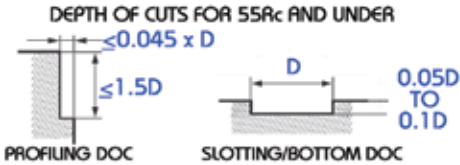
HARDMILL TECHNICAL DATA

HARDMILLING RECOMMENDATIONS

RUN HARDMILLS DRY WITH AIR BLAST OR OIL MIST
HARDMILLS ARE NOT CENTER CUTTING. DO NOT PLUNGE

Material	Tool Steel (-55HRC) AISI H13 ETC		Hardened Steel (55-60HRC) AISI D2 ETC		Hardened Steel (60-65HRC) AISI D2 ETC	
	SFM	Chip Load (inch per tooth)	SFM	Chip Load (inch per tooth)	SFM	Chip Load (inch per tooth)
1/8 & 5/32	250 - 900	.0007 - .001	200 - 500	.0007 - .001	150 - 325	.0006 - .0008
3/16	250 - 900	.001 - .0015	200 - 500	.001 - .0015	150 - 325	.001 - .0014
1/4	250 - 800	.002 - .0025	200 - 500	.002 - .0025	150 - 300	.002 - .0024
5/16	250 - 800	.0025 - .003	250 - 500	.0025 - .003	150 - 250	.0020 - .003
3/8 & 1/2	300 - 850	.0030 - .004	300 - 500	.0030 - .004	150 - 250	.0030 - .004
5/8 & 3/4	350 - 800	.0030 - .004	350 - 500	.0030 - .004	150 - 250	.0030 - .004

HARDMILLS ARE NOT CENTER CUTTING. DO NOT PLUNGE
RUN HARDMILLS DRY WITH AIR BLAST OR OIL MIST

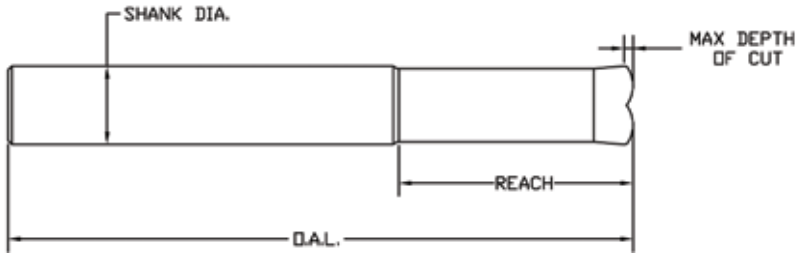


HIGH FEED MILL

HIGH FEED MILL



The AlTiN Coated Solid Carbide High Feed Mill achieves high metal removal rates and optimizes milling operations in slotting, pocketing, and contouring projects. Utilizes the new feed mill strategies of taking shallow cuts with rapid feed rates in order to reduce cycle times and efficiently deep mill where other tools cannot. This tool will increase efficiency as a pre-finish cutter in materials ranging from mild to hardened steels including stainless series. AlTiN coated.



SOLID

Part #	Cutting	Reach	Shank	OAL	# FL	Price
FMXML018A	.120	5/16	1/8	1 1/2	2	\$54.63
FMXML018B	.120	5/8	1/8	2	2	\$64.51
FMXML316A	.177	1/2	1/4	2 1/2	3	\$67.62
FMXML316B	.177	1	1/4	2 1/2	3	\$73.61
FMXML014A	.240	5/8	1/4	2 1/2	3	\$85.58
FMXML014B	.240	1	1/4	3	3	\$95.80
FMXML014C	.240	1 1/2	1/4	3	3	\$101.79
FMXML516A	.300	1	5/16	2 1/2	3	\$105.40
FMXML516B	.300	2	5/16	4	3	\$127.17
FMXML038A	.360	1	3/8	2 1/2	3	\$135.34
FMXML038B	.360	1 1/2	3/8	3	3	\$148.79
FMXML038C	.360	2	3/8	4	3	\$179.94
FMXML012A	.485	1 1/2	1/2	4	3	\$224.41
FMXML012B	.485	2 3/8	1/2	4	3	\$240.38
FMXML012C	.485	3 1/8	1/2	5	3	\$271.00

Tolerance – Diameter: +.000/- .002 Shank: -.0001/- .0003 Made from Submicrograin Carbide

COOLANT THRU HIGH FEED MILL



COOLANT THRU

Part #	Cutting	Shank	Reach	OAL	# FL	Price
FMXCT316A	.177	1/4	1/2	2 1/2	3	\$71.45
FMXCT316B	.177	1/4	1	2 1/2	3	\$77.44
FMXCT014A	.240	1/4	5/8	2 1/2	3	\$96.21
FMXCT014B	.240	1/4	1	3	3	\$109.37
FMXCT014C	.240	1/4	1 1/2	3	3	\$117.45
FMXCT516A	.300	5/16	1	2 1/2	3	\$114.33
FMXCT516B	.300	5/16	2	4	3	\$139.75
FMXCT038A	.360	3/8	1	2 1/2	3	\$147.94
FMXCT038B	.360	3/8	1 1/2	3	3	\$166.06
FMXCT038C	.360	3/8	2	4	3	\$200.90
FMXCT012A	.485	1/2	1 1/2	4	3	\$260.41
FMXCT012B	.485	1/2	2 3/8	4	3	\$267.00
FMXCT012C	.485	1/2	3 1/8	5	3	\$297.21

Feed-Max Feedrate Calculator (inches/tooth)

MATERIAL	Steel	Tool Steel	Soft Cast Iron	Hard Cast Iron	Stainless Steel	Super Alloy	Titanium Alloy
SFM	800/1100	450/650	250/450	450/650	300/450	50/175	300/400
Slotting feed per tooth	0.030xD	0.027xD	.024xD	0.024xD	0.018xD	0.018xD	0.021xD
Side milling feed p/tooth	0.055xD	0.045xD	0.040xD	0.040xD	0.024xD	0.024xD	0.035xD
Side milling depth of cut - Z	1 x DOC	1 x DOC	0.8 x DOC	1 x DOC	1 x DOC	0.5 x DOC	0.5 x DOC
Side milling step over	0.5 x D	0.5 x D	0.5 x D	0.5 x D	0.5 x D	0.5 x D	0.5 x D
SFM	400/800	350/400	150/325	350/450	200/350	50/125	200/300
Plunge milling feed p/tooth	0.010xD	0.010xD	0.007xD	0.007xD	0.006xD	0.006xD	0.007xD
Linear Depth of Cut	0.3 x D	0.3 x D	0.3 x D	0.3 x D	0.3 x D	0.3 x D	0.3 x D
				DEPTH OF CUT IN "Z"			
D=MAJOR DIAMETER OF TOOL				MAJOR DIA.	DOC	MAJOR DIA.	DOC
RAMPING ANGLE: 1-1.5°				.120	0.006	.300	0.02
REDUCE DOC -20% AND FEED PER TOOTH - 15% FOR B-Length				.177	0.01	.360	0.02
REDUCE DOC -40% AND FEED PER TOOTH - 30% FOR C-Length				.240	0.015	.485	0.025

CARBIDE ROUGHERS

STANDARD

Solid Carbide Fine Pitch Roughers are designed for maximum metal removal in all steel applications. Altin Coated



Part #	Flute Dia	Tooth Pitch	LOC	OAL	# Flutes	Price
170RF31	3/16	.040	.625	2.0	3	\$19.38
170RF14	1/4	.040	.750	2.5	4	\$24.44
170RF51	5/16	.040	.875	2.5	4	\$32.61
170RF38	3/8	.040	.875	2.5	4	\$40.50
170RF12	1/2	.060	1.0	3.0	4	\$56.18
170RF58	5/8	.060	1.25	3.5	4	\$108.77
170RF34	3/4	.060	1.5	4.0	4	\$145.72
170RF10	1	.060	1.5	4.0	4	\$259.96



LONG

Part #	Flute Dia	Tooth Pitch	LOC	OAL	# Flutes	Price
170RF31L	3/16	.040	1.0	2.5	3	\$25.31
170RF14L	1/4	.040	1.5	4	4	\$38.57
170RF51L	5/16	.040	1.5	4	4	\$53.85
170RF38L	3/8	.040	1.75	4	4	\$67.42
170RF12L	1/2	.060	2	4	4	\$83.42
170RF58L	5/8	.060	2.5	5	4	\$160.35
170RF34L	3/4	.060	2.5	5	4	\$236.89
170RF10L	1	.060	2.5	5	4	\$345.71

Weldon flats available upon request.

List Price Catalog - Check Website For Current Pricing

CARBIDE ROUGHERS

VARIABLE HELIX

Variable Helix. Increase production without the chatter from harmonics



Part #	Flute Dia	Tooth Pitch	LOC	OAL	# Flutes	Price
170RF31HD	3/16	.040	.625	2.0	3	\$23.98
170RF14HD	1/4	.040	.750	2.5	4	\$32.60
170RF51HD	5/16	.040	.875	2.5	4	\$42.05
170RF38HD	3/8	.040	.875	2.5	4	\$52.75
170RF12HD	1/2	.060	1.0	3.0	4	\$70.21
170RF58HD	5/8	.060	1.25	3.5	4	\$132.41
170RF34HD	3/4	.060	1.5	4.0	4	\$173.56
170RF10HD	1	.060	1.5	4.0	4	\$307.11

“THE FIREPLUG“

STUB VARIABLE HELIX



Part #	Flute Dia	Tooth Pitch	LOC	OAL	# Flutes	Price
170RF31HDST	3/16	.040	.312	2.0	3	\$20.63
170RF14HDST	1/4	.040	.375	2.0	4	\$29.46
170RF51HDST	5/16	.040	.500	2.0	4	\$36.06
170RF38HDST	3/8	.040	.560	2.0	4	\$45.19
170RF12HDST	1/2	.060	.625	2.5	4	\$62.06

Starting Speeds And Feeds. Strong Coolant Blast Recommended

Material	Carbon Steel	Tool Steel	Titanium	Stainless Steel	Nickel Based Alloy	Cobalt Alloy
Diameter	225-550 SFM	210-450 SFM	125-215 SFM	225-475 SFM	55-120 SFM	40-75 SFM
3/16	.0007-.002	.0005-.0015	.0007-.0013	.0008-.0015	.0005-.0012	.0005-.0012
1/4	.0007-.002	.0005-.0015	.0007-.0013	.0008-.0015	.0005-.0012	.0005-.0012
5/16	.001-.0025	.0007-.002	.0009-.0015	.001-.002	.0007-.0014	.0007-.0014
3/8	.0015-.003	.001-.0025	.0009-.0015	.001-.002	.0009-.0016	.0009-.0016
1/2	.0015-.0035	.001-.003	.0010-.0018	.0012-.0025	.0009-.0018	.0009-.0018
5/8	.002-.004	.0015-.0035	.0012-.0022	.002-.0037	.0012-.0023	.0012-.0023
3/4	.002-.004	.0015-.004	.0015-.0025	.002-.0037	.0015-.0025	.0015-.0025
1	.002-.005	.002-.0045	.0018-.0027	.0025-.0042	.0018-.0027	.0018-.0018

SIX FLUTE

SIX FLUTE

High Performance Profiling Mill
AlTiN coated.



Part # 6 FL	Tool Dia	LOC	Shank	OAL	Price
7800014	1/4	3/4	1/4	2 1/2	\$34.62
7800516	5/16	13/16	5/16	2 1/2	\$42.95
7800038	3/8	1	3/8	2 1/2	\$49.45
7800716	7/16	1	7/16	2 1/2	\$58.96
7800012	1/2	1 1/4	1/2	3	\$68.63
7800058	5/8	1 5/8	5/8	3 1/2	\$115.60
7800034	3/4	1 5/8	3/4	4	\$161.86
7800001	1	2	1	4	\$263.94

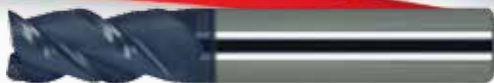
TECH NOTE – For best 6 Flute performance, use 5-30% radial depth of cut.

Materials	Carbon Steel	Stainless Steel	Alloy Steel	Nickel/High Temp	Titanium and Alloys
Diameter	(275-750 SFM)	(90-450 SFM)	(200-600 SFM)	(45-115 SFM)	(250-400 SFM)
1/4	.003	.002	.0008-.001	.0015-.002	.001-.002
3/8	.003	.002	.0008-.001	.0015-.002	.001-.002
1/2	.004	.0025-.003	.001-.002	.002-.0025	.001-.0025
5/8	.005	.003-.004	.0015-.003	.002-.0035	.002-.003
3/4	.006	.004-.005	.002-.004	.002-.004	.0025-.004
1	.007	.005-.006	.003-.005	.003-.005	.004-.006

-These are approximate numbers, a good starting point.

-Coolant application is an important part of using this endmill

45° & 60° CARBIDE ENDMILLS



45 & 60 DEGREE

45 & 60 degree helix 3 Flute endmills are designed for higher speeds and feeds while providing a shearing action that produces improved surface finish. AlTiN coated

45 DEGREE

Part # 3 FLT	Tool Dia	LOC	Shank	OAL	Price
3800018	1/8	1/2	1/8	1 1/2	\$13.78
3800316	3/16	3/4	3/16	2	\$17.29
3800014	1/4	3/4	1/4	2 1/2	\$20.13
3800516	5/16	13/16	5/16	2 1/2	\$26.10
3800038	3/8	7/8	3/8	2 1/2	\$32.09
3800012	1/2	1	1/2	3	\$56.91
3800058	5/8	1 1/4	5/8	3 1/2	\$110.99
3800034	3/4	1 1/2	3/4	4	\$157.90



60 DEGREE

Part # 3 FLT	Tool Dia	LOC	Shank	OAL	Price
3900018	1/8	1/2	1/8	1 1/2	\$13.78
3900316	3/16	5/8	3/16	2	\$17.29
3900014	1/4	3/4	1/4	2 1/2	\$20.13
3900516	5/16	13/16	5/16	2 1/2	\$26.10
3900038	3/8	7/8	3/8	2 1/2	\$32.09
3900012	1/2	1	1/2	3	\$56.91
3900058	5/8	1 1/4	5/8	3 1/2	\$110.99
3900034	3/4	1 1/2	3/4	4	\$157.90

Due to fluctuating carbide costs, prices are subject to change

Tolerance – Diameter: +.000/- .002 Shank: -.0001/- .0003 Made from Submicrograin Carbide

PRE-REAM ENDMILLS

PRE-REAM ENDMILLS

Solid Carbide, 4 flute, Altin Coated



IMPERIAL

Part #	Endmill Cut Dia	Preps Reamed Hole Size	Corner Rad	LOC	Shank	OAL	Price
PRERM018XR	.119	1/8	.007	1/2	1/8	1 1/2	\$13.65
PRERM316XR	.181	3/16	.007	5/8	3/16	2	\$16.75
PRERM014XR	.244	1/4	.007	3/4	1/4	2 1/2	\$23.36
PRERM516XR	.306	5/16	.007	7/8	5/16	2 1/2	\$29.87
PRERM038XR	.368	3/8	.007	7/8	3/8	2 1/2	\$36.86
PRERM012XR	.493	1/2	.007	1	1/2	3	\$59.24
PRERMPACXR	One each of the above tools stored in a plastic case						\$173.31



METRIC

Part #	Endmill Cut Dia	Preps Reamed Hole Size	Corner Rad	LOC	Shank	OAL	Price
PRERM03XR-M	.112	3MM	.007	1/2	1/8	1 1/2	\$14.58
PRERM04XR-M	.150	4MM	.007	5/8	3/16	2	\$23.24
PRERM05XR-M	.190	5MM	.007	5/8	1/4	2	\$32.43
PRERM06XR-M	.230	6MM	.007	3/4	1/4	2 1/2	\$25.22
PRERM08XR-M	.309	8MM	.007	7/8	5/16	2 1/2	\$29.87
PRERM10XR-M	.387	10MM	.007	7/8	7/16	3	\$66.43
PRERM12XR-M	.465	12MM	.007	1	1/2	3	\$68.46
PRERMPACXR-M	One each of the above tools stored in a plastic case						\$250.93

PRE-REAM CARBIDE ENDMILLS

The Pre-Ream Endmill Concept

The accuracy of a reamed hole depends heavily on the procedures leading up to the actual reaming operation. The purpose of a reamer is to expand a hole to a precise specified size. In some cases the process of drilling and reaming a hole is accurate enough but this sometimes results in a loss of accuracy in true position location, size, and roundness of the hole.

If the drill “walks”, drifts or creates a hole that is not precisely round during the drilling operation, a reamer is not rigid enough to correct these issues and it will mimic the hole error that the drill left whether it be slightly out of round or slightly off location. The accepted way to avoid this problem has been to “skim bore” the drilled hole with a boring bar. This means finding, and assembling a boring head and the appropriate boring bar, aligning the boring bar, taking a test cut and measuring hole, making the adjustment on the boring head to creep up on the size desired, and hoping that it cuts consistently after that. This usually amounts to 30 minutes for most operators.

A solution to this problem is to eliminate the “skim bore” operation by utilizing a carbide endmill that is slightly undersize from the reamer size. Plunge-milling a hole after the drilling operation with a **Pre-Ream Endmill**, qualifies the hole leaving it perfectly round with an accurate location, correcting any error occurring from the drilling process. This also leaves a consistent and proper amount of stock in the hole for reaming (most often .003 per side, .006 total diameter) allowing the reamer to cut efficiently and accurately. The reamer is never experiencing a heavy cut or an inconsistent side wall that a drill can sometimes produce. **This process also greatly extends the life of the reamer.** Lakeshore Carbide Pre-Ream Endmills eliminate these issues and greatly improve efficiency in reaming operations.

For best results we recommend the drilled hole be .012 min.- .032 max. under the size of the Pre-Ream Endmill.



Pre-Ream Pack

Starting Point Speeds and Feeds

SFM = 70-120 Chipload = .0015 - .003

Plunge to depth. If stringy chip, use a drill peck cycle
Coolant Recommended

CARBIDE SPOT DRILLS

SPOT DRILLS

Spot drilling before drilling cycles ensures accurate hole locations and prevents drill deflection.



90° INCLUDED

Part # 2 Flute	Point Angle	Shank Dia	LOC	OAL	Price
SD139018	90°	1/8"	1/4"	2	\$15.67
SD139316	90°	3/16"	3/8"	2	\$18.91
SD139014	90°	1/4"	3/8"	3	\$24.66
SD139038	90°	3/8"	1/2"	4	\$43.62
SD139012	90°	1/2"	3/4"	4	\$69.82
SD139058	90°	5/8"	1"	4	\$123.43
SD139034	90°	3/4"	1"	4	\$164.10



120° INCLUDED

Part # 2 Flute	Point Angle	Shank Dia	LOC	OAL	Price
SD120018	120°	1/8"	1/4"	2	\$15.67
SD120316	120°	3/16"	3/8"	2	\$18.91
SD120014	120°	1/4"	3/8"	3	\$24.66
SD120038	120°	3/8"	1/2"	4	\$43.62
SD120012	120°	1/2"	3/4"	4	\$69.82
SD120058	120°	5/8"	1"	4	\$123.43
SD120034	120°	3/4"	1"	4	\$164.10

Tolerance – Diameter: +.000/-0.002 Shank: -.0001/-0.0003 Made from Submicrograin Carbide

DOUBLE END CARBIDE SPOT DRILLS

DOUBLE END SPOT DRILLS

Spot drilling before drilling cycles ensures accurate hole locations and prevents drill deflection.



90° INCLUDED

Part # 2 Flute	Point Angle	Shank Dia	LOC	OAL	Price
SDE139018	90°	1/8"	1/4"	2	\$23.67
SDE139316	90°	3/16"	3/8"	2	\$28.56
SDE139014	90°	1/4"	3/8"	3	\$33.95
SDE139038	90°	3/8"	1/2"	4	\$51.93
SDE139012	90°	1/2"	3/4"	4	\$89.21
SDE139058	90°	5/8"	1"	4	\$155.78
SDE139034	90°	3/4"	1"	4	\$211.94



120° INCLUDED

Part # 2 Flute	Point Angle	Shank Dia	LOC	OAL	Price
SDE120018	120°	1/8"	1/4"	2	\$23.67
SDE120316	120°	3/16"	3/8"	2	\$28.56
SDE120014	120°	1/4"	3/8"	3	\$33.95
SDE120038	120°	3/8"	1/2"	4	\$51.93
SDE120012	120°	1/2"	3/4"	4	\$89.21
SDE120058	120°	5/8"	1"	4	\$155.78
SDE120034	120°	3/4"	1"	4	\$211.94

Tolerance – Diameter: +.000/- .002 Shank: -.0001/- .0003 Made from Submicrograin Carbide

90° & 120° CARBIDE DRILLMILLS

90° DRILLMILLS

Multi purpose tool for chamfering parts.
Not recommended for drilling steel.



X on end of part number indicates AITiN COATING

To order UNCOATED remove the X from end of part number

Part # 2FL	Part # 4FL	Flute Dia	Point Angle	LOC	OAL	Price
15DRLML18X	17DRLML18X	1/8	90°	.500	1.5	\$13.62
15DRLML31X	17DRLML31X	3/16	90°	.625	2.0	\$18.21
15DRLML14X	17DRLML14X	1/4	90°	.750	2.5	\$24.98
15DRLML51X	17DRLML51X	5/16	90°	.875	2.5	\$32.53
15DRLML38X	17DRLML38X	3/8	90°	1.0	2.5	\$39.64
15DRLML12X	17DRLML12X	1/2	90°	1.0	3.0	\$62.17
15DRLML58X	17DRLML58X	5/8	90°	1.25	3.5	\$101.17
15DRLML34X	17DRLML34X	3/4	90°	1.5	4.0	\$136.84



120° DRILLMILLS

X on end of part number indicates AITiN COATING

To order UNCOATED remove the X from end of part number

Part # 2FL	Part # 4FL	Flute Dia	Point Angle	LOC	OAL	Price
11DRLML18X	13DRLML18X	1/8	120°	.500	1.5	\$13.62
11DRLML31X	13DRLML31X	3/16	120°	.625	2.0	\$18.21
11DRLML14X	13DRLML14X	1/4	120°	.750	2.5	\$24.98
11DRLML51X	13DRLML51X	5/16	120°	.875	2.5	\$32.53
11DRLML38X	13DRLML38X	3/8	120°	1.0	2.5	\$39.64
11DRLML12X	13DRLML12X	1/2	120°	1.0	3.0	\$62.17
11DRLML58X	13DRLML58X	5/8	120°	1.25	3.5	\$101.17
11DRLML34X	13DRLML34X	3/4	120°	1.5	4.0	\$136.84

60° CARBIDE DRILLMILLS

60° DRILLMILLS

Multi purpose tool for chamfering parts.
Not recommended for drilling steel.



X on end of part number indicates AITiN COATING

To order UNCOATED remove the X from end of part number

Part # 2FL	Part # 4FL	Flute Dia	Point Angle	LOC	OAL	Price
18DRLML18X	19DRLML18X	1/8	60°	.500	1.5	\$13.62
18DRLML31X	19DRLML31X	3/16	60°	.625	2.0	\$18.21
18DRLML14X	19DRLML14X	1/4	60°	.750	2.5	\$24.98
18DRLML51X	19DRLML51X	5/16	60°	.875	2.5	\$32.53
18DRLML38X	19DRLML38X	3/8	60°	1.0	2.5	\$39.64
18DRLML12X	19DRLML12X	1/2	60°	1.0	3.0	\$62.17
18DRLML58X	19DRLML58X	5/8	60°	1.25	3.5	\$101.17
18DRLML34X	19DRLML34X	3/4	60°	1.5	4.0	\$136.84

Multi purpose tool for chamfering parts. Not recommended for drilling steel.

These do not have drill geometry. The 2 flute style can spot drill aluminum but not steel. These tools are primarily for milling angles or chamfering applications.

List Price Catalog - Check Website For Current Pricing

Tolerance – Diameter: +.000/- .002 Shank: -.0001/- .0003 Made from Submicrograin Carbide

Phone 716-462-4349

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www.lakeshorecarbide.com

CORNER ROUNDING

CORNER ROUNDING

Carbide Single End Corner Round Endmills

Our heavy-duty version of the standard external corner rounding cutter.



PART #	TOOL RADIUS	PILOT DIA	SHANK DIA	OAL	# FLUTES	PRICE
1-32RPEM	1/32 (.031)	0.046	1/8	1-1/2	2	\$26.86
1-16RPEM	1/16 (.062)	0.046	3/16	2	2	\$35.98
3-32RPEM	3/32 (.093)	0.0625	1/4	2	3	\$45.98
1-8RPEM	1/8 (.125)	0.093	3/8	2 1/2	3	\$61.27
3-16RPEM	3/16 (.187)	0.125	1/2	2 1/2	3	\$81.73
1-4RPEM	1/4 (.250)	0.125	5/8	3 1/2	4	\$118.89
RADPAC	SAVE 10% - One each of the above stored in a plastic case					\$333.64

Tolerance – Diameter: +.000/-.002 Shank: -.0001/-.0003 Made from Submicrograin Carbide

SPIRAL FLUTE CHAMFER MILLS

CHAMFER MILLS

Unique helical geometry reduces cutting forces and improves chip evacuation

90 DEGREE INCLUDED



PART #	SHANK DIA	TIP DIA	INCL ANGLE	OAL	# FLUTES	PRICE
18CHAM45	1/8	To Point	90°	1-1/2	4-STR *	\$18.88
14CHAM45	1/4	0.046	90°	2	4-HLX	\$34.01
38CHAM45	3/8	0.062	90°	2	4-HLX	\$49.30
12CHAM45	1/2	0.093	90°	2 1/2	4-HLX	\$73.75
58CHAM45	5/8	.125	90°	3 1/2	4-HLX	\$114.90

* Straight Fluted Tool

82 DEGREE INCLUDED



PART #	SHANK DIA	TIP DIA	INCL ANGLE	OAL	# FLUTES	PRICE
18CHAM41	1/8	To Point	82°	1-1/2	4-STR *	\$18.88
14CHAM41	1/4	0.046	82°	2	4-HLX	\$34.01
38CHAM41	3/8	0.062	82°	2	4-HLX	\$49.30
12CHAM41	1/2	0.093	82°	2 1/2	4-HLX	\$73.75
58CHAM41	5/8	.125	82°	3 1/2	4-HLX	\$114.90

* Straight Fluted Tool

60 DEGREE INCLUDED



PART #	SHANK DIA	TIP DIA	INCL ANGLE	OAL	# FLUTES	PRICE
18CHAM30	1/8	To Point	60°	1-1/2	4-STR *	\$18.88
14CHAM30	1/4	0.046	60°	2	4-HLX	\$34.01
38CHAM30	3/8	0.062	60°	2	4-HLX	\$49.30
12CHAM30	1/2	0.093	60°	2 1/2	4-HLX	\$73.75
58CHAM30	5/8	.125	60°	3 1/2	4-HLX	\$114.90

* Straight Fluted Tool

STUB SQUARE END

STUB SQUARE END

Carbide Single-End Stub Length End Mills
Shorter flute length for increased rigidity
30 degree helix, center cutting.



X on end of part number indicates AlTiN COATING

To order UNCOATED remove the X from end of part number

Part # 2 FL	Part # 4 FL	Tool Dia	LOC	Shank	OAL	Price
1100332X	1200332X	3/32	3/16	1/8	1 1/2	\$9.86
1100018X	1200018X	1/8	1/4	1/8	1 1/2	\$9.86
1100532X	1200532X	5/32	5/16	3/16	2	\$12.71
1100316X	1200316X	3/16	3/8	3/16	2	\$12.71
1100014X	1200014X	1/4	1/2	1/4	2	\$16.11
1100516X	1200516X	5/16	1/2	5/16	2	\$23.51
1100038X	1200038X	3/8	5/8	3/8	2	\$26.62
1100716X	1200716X	7/16	5/8	7/16	2 1/2	\$35.63
1100012X	1200012X	1/2	5/8	1/2	2 1/2	\$44.23
1100058X	1200058X	5/8	3/4	5/8	3	\$88.18
1100034X	1200034X	3/4	1	3/4	4	\$134.58

Tolerance – Diameter: +.000/- .002 Shank: -.0001/- .0003 Made from Submicrograin Carbide

STUB BALLNOSE

STUB BALLNOSE



X on end of part number indicates AITiN COATING

To order UNCOATED remove the X from end of part number

Part # 2 FLT	Part # 4 FLT	Tool Dia	LOC	Shank	OAL	Price
1300332X	1400332X	3/32	3/16	1/8	1 1/2	\$12.19
1300018X	1400018X	1/8	1/4	1/8	1 1/2	\$12.19
1300532X	1400532X	5/32	5/16	3/16	2	\$15.02
1300316X	1400316X	3/16	3/8	3/16	2	\$15.02
1300014X	1400014X	1/4	1/2	1/4	2	\$19.29
1300516X	1400516X	5/16	1/2	5/16	2	\$27.01
1300038X	1400038X	3/8	5/8	3/8	2	\$31.13
1300716X	1400716X	7/16	5/8	7/16	2 1/2	\$41.27
1300012X	1400012X	1/2	5/8	1/2	2 1/2	\$51.33
1300058X	1400058X	5/8	3/4	5/8	3	\$96.64
1300034X	1400034X	3/4	1	3/4	4	\$153.78

List Price Catalog - Check Website For Current Pricing

Tolerance – Diameter: +.000/- .002 Shank: -.0001/- .0003 Made from Submicrograin Carbide

STUB DOUBLE END

STUB DOUBLE END



X on end of part number indicates AlTiN COATING

To order UNCOATED remove the X from end of part number

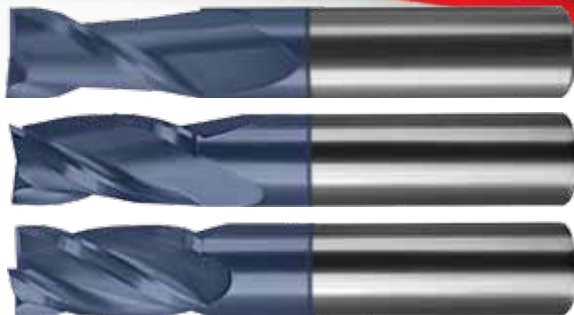
Part # 2 FLT	Part # 4 FLT	Tool Dia	LOC	Shank	OAL	Price
1120332X	1220332X	3/32	3/16	1/8	1 1/2	\$15.89
1120018X	1220018X	1/8	1/4	1/8	1 1/2	\$15.89
1120532X	1220532X	5/32	5/16	3/16	2	\$18.73
1120316X	1220316X	3/16	3/8	3/16	2	\$18.73
1120014X	1220014X	1/4	1/2	1/4	2 1/2	\$24.31
1120516X	1220516X	5/16	1/2	5/16	2 1/2	\$32.84
1120038X	1220038X	3/8	1/2	3/8	2 1/2	\$37.61
1120716X	1220716X	7/16	9/16	7/16	3	\$47.32
1120012X	1220012X	1/2	5/8	1/2	3	\$60.65

Double end stub length endmills are ideal for slotting, keying, and general purpose milling.

Tolerance – Diameter: +.000/- .002 Shank: -.0001/- .0003 Made from Submicrograin Carbide

STANDARD LENGTH ENDMILLS

STANDARD LENGTH



X on end of part number indicates AlTiN COATING

To order UNCOATED remove the X from end of part number

Part # 2 FLT	Part # 3 FLT	Part # 4 FLT	Tool Dia	LOC	Shank	OAL	Price
1500332X	1600332X	1700332X	3/32	3/8	1/8	1 1/2	\$9.82
1500018X	1600018X	1700018X	1/8	1/2	1/8	1 1/2	\$9.92
1500532X	1600532X	1700532X	5/32	9/16	3/16	2	\$13.66
1500316X	1600316X	1700316X	3/16	5/8	3/16	2	\$12.96
1500014X	1600014X	1700014X	1/4	3/4	1/4	2 1/2	\$17.67
1500516X	1600516X	1700516X	5/16	7/8	5/16	2 1/2	\$24.11
1500038X	1600038X	1700038X	3/8	1	3/8	2 1/2	\$29.18
1500716X	1600716X	1700716X	7/16	1	7/16	2 1/2	\$40.90
1500012X	1600012X	1700012X	1/2	1	1/2	3	\$49.46
NA	NA	1700012XL	1/2	1 1/4	1/2	3	\$51.08
1500916X	1600916X	1700916X	9/16	1 1/4	9/16	3 1/2	\$86.52
1500058X	1600058X	1700058X	5/8	1 1/4	5/8	3 1/2	\$90.35
1500034X	1600034X	1700034X	3/4	1 1/2	3/4	4	\$126.85
1500078X	1600078X	1700078X	7/8	1 1/2	7/8	4	\$225.03
1500001X	1600001X	1700001X	1	1 1/2	1	4	\$230.28

Tolerance – Diameter: +.000/- .002 Shank: -.0001/- .0003 Made from Submicrograin Carbide

STANDARD BALLNOSE

STANDARD BALLNOSE



X on end of part number indicates AlTiN COATING

To order UNCOATED remove the X from end of part number

Part # 2 FLT	Part # 3 FLT	Part # 4 FLT	Tool Dia	LOC	Shank	OAL	Price
1800332X	1900332X	1950332X	3/32	3/8	1/8	1 1/2	\$12.19
1800018X	1900018X	1950018X	1/8	1/2	1/8	1 1/2	\$12.19
1800532X	1900532X	1950532X	5/32	9/16	3/16	2	\$16.20
1800316X	1900316X	1950316X	3/16	5/8	3/16	2	\$15.03
1800014X	1900014X	1950014X	1/4	3/4	1/4	2 1/2	\$21.51
1800516X	1900516X	1950516X	5/16	7/8	5/16	2 1/2	\$28.33
1800038X	1900038X	1950038X	3/8	1	3/8	2 1/2	\$32.01
1800716X	1900716X	1950716X	7/16	1	7/16	2 1/2	\$44.20
1800012X	1900012X	1950012X	1/2	1	1/2	3	\$58.26
1800916X	1900916X	1950916X	9/16	1 1/4	9/16	3 1/2	\$88.93
1800058X	1900058X	1950058X	5/8	1 1/4	5/8	3 1/2	\$95.72
1800034X	1900034X	1950034X	3/4	1 1/2	3/4	4	\$138.70
1800078X	1900078X	1950078X	7/8	1 1/2	7/8	4	\$238.46
1800001X	1900001X	1950001X	1	1 1/2	1	4	\$243.71

Tolerance – Diameter: +.000/-0.002 Shank: -.0001/-0.0003 Made from Submicrograin Carbide

STANDARD DOUBLE END

STANDARD DOUBLE END



X on end of part number indicates AlTiN COATING

To order UNCOATED remove the X from end of part number

Part # 2 FLT	Part # 4 FLT	Tool Dia	LOC	Shank	OAL	Price
4120018X	4220018X	1/8	3/8	1/8	2	\$20.40
4120532X	4220532X	5/32	7/16	3/16	2 1/2	\$23.37
4120316X	4220316X	3/16	1/2	3/16	2 1/2	\$23.37
4120014X	4220014X	1/4	5/8	1/4	2 1/2	\$27.15
4120516X	4220516X	5/16	3/4	5/16	3 1/2	\$49.68
4120038X	4220038X	3/8	3/4	3/8	3 1/2	\$50.06
4120716X	4220716X	7/16	7/8	7/16	4	\$64.39
4120012X	4220012X	1/2	1	1/2	4	\$75.87

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Tolerance – Diameter: +.000/-.002 Shank: -.0001/-.0003 Made from Submicrograin Carbide

Phone 716-462-4349

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www.lakeshorecarbide.com

CORNER RADIUS ENDMILLS

CORNER RADIUS

4 Flute standard length
Solid carbide endmill with
Corner radius and AlTiN coating
(Not available in Uncoated)



Part #	Tool Dia	Corner Radius	LOC	Shank	OAL	Price
1700332X-.010R	3/32	.010	3/8	1/8	1 1/2	\$11.59
1700332X-.015R	3/32	.015	3/8	1/8	1 1/2	\$11.59
1700332X-.020R	3/32	.020	3/8	1/8	1 1/2	\$11.59
1700018X-.010R	1/8	.010	1/2	1/8	1 1/2	\$11.71
1700018X-.015R	1/8	.015	1/2	1/8	1 1/2	\$11.71
1700018X-.020R	1/8	.020	1/2	1/8	1 1/2	\$11.71
1700018X-.030R	1/8	.030	1/2	1/8	1 1/2	\$11.71
1700316X-.010R	3/16	.010	5/8	3/16	2	\$15.30
1700316X-.015R	3/16	.015	5/8	3/16	2	\$15.30
1700316X-.020R	3/16	.020	5/8	3/16	2	\$15.30
1700316X-.030R	3/16	.030	5/8	3/16	2	\$15.30
1700014X-.015R	1/4	.015	3/4	1/4	2.5	\$20.84
1700014X-.020R	1/4	.020	3/4	1/4	2.5	\$20.84
1700014X-.030R	1/4	.030	3/4	1/4	2.5	\$20.84
1700014X-.045R	1/4	.045	3/4	1/4	2.5	\$20.84
1700014X-.060R	1/4	.060	3/4	1/4	2.5	\$20.84
1700516X-.015R	5/16	.015	7/8	5/16	2.5	\$28.46
1700516X-.020R	5/16	.020	7/8	5/16	2.5	\$28.46
1700516X-.030R	5/16	.030	7/8	5/16	2.5	\$28.46
1700516X-.045R	5/16	.045	7/8	5/16	2.5	\$28.46
1700516X-.060R	5/16	.060	7/8	5/16	2.5	\$28.46

CORNER RADIUS ENDMILLS

CORNER RADIUS Continued



Part #	Tool Dia	Corner Radius	LOC	Shank	OAL	Price
1700038X-.015R	3/8	.015	1.0	3/8	2.5	\$34.42
1700038X-.020R	3/8	.020	1.0	3/8	2.5	\$34.42
1700038X-.030R	3/8	.030	1.0	3/8	2.5	\$34.42
1700038X-.045R	3/8	.045	1.0	3/8	2.5	\$34.42
1700038X-.060R	3/8	.060	1.0	3/8	2.5	\$34.42
1700012X-.015R	1/2	.015	1.0	1/2	3.0	\$58.36
1700012X-.020R	1/2	.020	1.0	1/2	3.0	\$58.36
1700012X-.030R	1/2	.030	1.0	1/2	3.0	\$58.36
1700012X-.045R	1/2	.045	1.0	1/2	3.0	\$58.36
1700012X-.060R	1/2	.060	1.0	1/2	3.0	\$58.36
1700012X-.090R	1/2	.090	1.0	1/2	3.0	\$58.36
1700012X-.125R	1/2	.125	1.0	1/2	3.0	\$58.36

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LONG SQUARE END

LONG SQUARE END



X on end of part number indicates AITiN COATING

To order UNCOATED remove the X from end of part number

Part # 2FL	Part # 4FL	Tool Dia	LOC	Shank	OAL	Price
510018BX	520018BX	1/8	3/4	1/8	2 1/2	\$13.84
510316CX	520316CX	3/16	3/4	3/16	2 1/2	\$17.23
510014AX	520014AX	1/4	1	1/4	4	\$26.47
510014CX	520014CX	1/4	1 1/8	1/4	3	\$25.78
510516AX	520516AX	5/16	1 1/8	5/16	3	\$33.20
510038AX	520038AX	3/8	1 1/8	3/8	3	\$36.02
510038BX	520038BX	3/8	1	3/8	4	\$44.54
510716AX	520716AX	7/16	2	7/16	4	\$51.68
510012AX	520012AX	1/2	1 1/2	1/2	4	\$62.49
510012BX	520012BX	1/2	2	1/2	4	\$64.73
510058AX	520058AX	5/8	2 1/4	5/8	5	\$124.51
510034AX	520034AX	3/4	2 1/4	3/4	5	\$182.76
510001AX	520001AX	1	2 1/4	1	5	\$254.33

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LONG BALLNOSE

LONG BALLNOSE



X on end of part number indicates AITiN COATING

To order UNCOATED remove the X from end of part number

Part # 2 FLT	Part # 4 FLT	Tool Dia	LOC	Shank	OAL	Price
530018BX	540018BX	1/8	3/4	1/8	2 1/2	\$17.00
530316CX	540316CX	3/16	3/4	3/16	2 1/2	\$20.15
530014AX	540014AX	1/4	1	1/4	4	\$28.99
530014CX	540014CX	1/4	1 1/8	1/4	3	\$29.36
530516AX	540516AX	5/16	1 1/8	5/16	3	\$36.90
530038AX	540038AX	3/8	1 1/8	3/8	3	\$40.42
530038BX	540038BX	3/8	1	3/8	4	\$51.19
530716AX	540716AX	7/16	2	7/16	4	\$61.25
530012AX	540012AX	1/2	1 1/2	1/2	4	\$70.26
530012BX	540012BX	1/2	2	1/2	4	\$70.69
530058AX	540058AX	5/8	2 1/4	5/8	5	\$139.88
530034AX	540034AX	3/4	2 1/4	3/4	5	\$205.15
530001AX	540001AX	1	2 1/4	1	5	\$373.39

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Tolerance – Diameter: +.000/-0.002 Shank: -.0001/-0.0003 Made from Submicrograin Carbide

METRIC CARBIDE ENDMILLS

METRIC
4 FLUTE STANDARD LENGTH



X on end of part number indicates AITiN COATING

To order UNCOATED remove the X from end of part number

Part #	Tool Dia	LOC	Shank	OAL	Price
170MET035X	3.5mm	12mm	4mm	50mm	\$14.50
170MET040X	4.0mm	14mm	4mm	50mm	\$15.00
170MET045X	4.5mm	16mm	6mm	50mm	\$18.55
170MET050X	5.0mm	16mm	6mm	50mm	\$19.55
170MET060X	6.0mm	19mm	6mm	50mm	\$20.55
170MET070X	7.0mm	19mm	8mm	63mm	\$31.27
170MET080X	8.0mm	20mm	8mm	63mm	\$33.27
170MET090X	9.0mm	22mm	10mm	75mm	\$45.25
170MET100X	10.0mm	22mm	10mm	75mm	\$46.24
170MET110X	11.0mm	25mm	12mm	75mm	\$56.79
170MET120X	12.0mm	25mm	12mm	75mm	\$57.29
170MET140X	14.0mm	32mm	14mm	89mm	\$79.48
170MET160X	16.0mm	32mm	16mm	89mm	\$98.55
170MET180X	18.0mm	38mm	18mm	100mm	\$175.05
170MET200X	20.0mm	38mm	20mm	100mm	\$171.64
170MET250X	25.0mm	38mm	25mm	100mm	\$240.22

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Tolerance – Diameter: +.000/-0.002 Shank: -.0001/-0.0003 Made from Submicrograin Carbide

BACK CHAMFER TOOL

BACK CHAMFER



Solid carbide back chamfer endmill can machine a 45 degree backchamfer from the front side of your part.

AITiN COATED

Part # 2 FLT	TIP	NECK	REACH	Shank Diameter	Overall Length	Price
BCC014X	.240	.125	.250	0.500	2.5	\$56.79
BCC014LX	.240	.125	.250	1.000	2.5	\$68.51
BCC375X	.365	.187	.375	0.750	2.5	\$79.28
BCC375LX	.365	.187	.375	1.250	2.5	\$91.53
BCC012X	.490	.250	.500	1.000	3.0	\$118.65
BCC012LX	.490	.250	.500	1.500	3.0	\$130.38
BCC058X	.615	.375	.625	1.125	3.5	\$187.51
BCC058LX	.615	.375	.625	1.750	3.5	\$200.11

UNCOATED

Part # 2 FLT	TIP	NECK	REACH	Shank Diameter	Overall Length	Price
BCC014	.240	.125	.250	0.500	2.5	\$53.53
BCC014L	.240	.125	.250	1.000	2.5	\$65.26
BCC375	.365	.187	.375	0.750	2.5	\$74.43
BCC375L	.365	.187	.375	1.250	2.5	\$86.68
BCC012	.490	.250	.500	1.000	3.0	\$112.67
BCC012L	.490	.250	.500	1.500	3.0	\$124.39
BCC058	.615	.375	.625	1.125	3.5	\$178.83
BCC058L	.615	.375	.625	1.750	3.5	\$191.43

TOOL EXTENSIONS

EXTENSIONS



- Two opposed set screws for secure holding and a third for possible use of positive stop.
- A-2 Steel, hardened to 60-62 R.C.
- Concentricity within .0002
- Black Oxide Finish

Part #	HOLE	DEC	SHANK	OAL	SCREW	Price
12501	1/8	0.1252	0.375	3.00	8-32	\$105.00
18701	3/16	0.1877	0.500	3.00	8-32	\$105.00
25001	1/4	0.2502	0.500	3.00	10-32	\$105.00
31201	5/16	0.3127	0.750	4.00	1/4-28	\$109.20
37501	3/8	0.3752	0.750	4.00	1/4-28	\$109.20



PROUDLY MADE IN THE USA

List Price Catalog - Check Website For Current Pricing

ROTARY HEX BROACHES

ROTARY BROACH



Part Number	Hex Size	Shank Diameter	Depth of cut	Overall Length	Tool Price
RPBH116	1/16"	8mm	3/32"	1-1/4"	\$46.94
RPBH332	3/32"	8mm	9/64"	1-1/4"	\$46.94
RPBH018	1/8"	8mm	3/16"	1-1/4"	\$46.94
RPBH532	5/32"	8mm	1/4"	1-1/4"	\$46.94
RPBH316	3/16"	8mm	9/32"	1-1/4"	\$46.94
RPBH732	7/32"	8mm	11/32"	1-1/4"	\$46.94
RPBH014	1/4"	8mm	3/8"	1-1/4"	\$46.94
RPBH932	9/32"	8mm	3/8"	1-1/2"	\$61.92
RPBH516	5/16"	8mm	3/8"	1-1/2"	\$61.92

H.S.S. Rotary broaches – used to cut hex shapes in blind holes.
Max forming depth 1-1/2 times the broach size.
Broach size measured across flats.

List Price Catalog - Current Pricing On Our Website

CARBIDE TIPPED SLITTING SAWS

Carbide Tipped Slitting Saws

Carbide tipped slitting saws have a carbide grade and tool geometry best suited for the material to be cut.

All saws are precision ground with side clearance and concavity on the carbide tips for free cutting action.

For extended tool life, saws can be ordered with a variety of special coatings.



EDP Non Ferrous	Cat No. Cast Iron	Cat No. Steel	Saw Dia	Saw Width	Arbor Hole	# of Teeth	Price
NFS 321	CIS 321	STS 321	3	1/16	1	12	\$153.00
NFS 331	CIS 331	STS 331	3	3/32	1	12	\$158.00
NFS 341	CIS 341	STS 341	3	1/8	1	12	\$135.10
NFS 361	CIS 361	STS 361	3	3/16	1	12	\$169.18
NFS 421	CIS 421	STS 421	4	1/16	1	14	\$198.12
NFS 431	CIS 431	STS 431	4	3/32	1	14	\$199.48
NFS 441	CIS 441	STS 441	4	1/8	1	14	\$189.20
NFS 461	CIS 461	STS 461	4	3/16	1	14	\$204.00
NFS 521	CIS 521	STS 521	5	1/16	1 or 1-1/4	16	\$248.00
NFS 531	CIS 531	STS 531	5	3/32	1 or 1-1/4	16	\$249.29
NFS 541	CIS 541	STS 541	5	1/8	1 or 1-1/4	16	\$241.10
NFS 561	CIS 561	STS 561	5	3/16	1 or 1-1/4	16	\$259.16
NFS 621	CIS 621	STS 621	6	1/16	1 or 1-1/4	18	\$302.23
NFS 631	CIS 631	STS 631	6	3/32	1 or 1-1/4	18	\$304.00
NFS 641	CIS 641	STS 641	6	1/8	1 or 1-1/4	18	\$282.21
NFS 661	CIS 661	STS 661	6	3/16	1 or 1-1/4	18	\$314.80



Don't see what you want? Need a Special?

Let us give you a quote.

Email or fax your drawing, or give us a call and let us supply your solid carbide or carbide tipped needs.

LakeShore Carbide distributes only high quality USA made tooling at the lowest possible price. Our tools offer the highest quality American micrograin carbide, premium coatings and our unique geometries. The end result is a high performance tool that delivers solid reliability at a fair price.

LakeShore Carbide is always working hard to offer our customers the best value for their dollar. We run a cost conscious facility which utilizes the internet and secure encrypted credit card sales transactions. We have no salesmen, or advertising and credit department which allows us to pass increased savings on to you.

We continue to expand our tooling lines and we are proud to be the supplier of choice for our present customers. We hope you will allow us the chance to compete for your business and lower your company's tooling costs.



2013

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