

ADVANCED PERFORMANCE

Solid Carbide End Mills For Aluminum And Non-Ferrous Materials



FEATURES/DESCRIPTION	APPLICATION	FEATURES												
PERFORMANCE AL All-Terrain Aluminum Milling - Premium sub-micron grade carbide substrate for wear resistance - For conventional or high speed machining of Aluminum - Productivity and cost-efficiency - Highly polished cutting face and flutes - Stocked Bright or NF1 coating for Aluminum machining		<table border="1"> <tr> <td>CARBIDE</td> <td>45°</td> </tr> <tr> <td>2FL</td> <td>SQ</td> </tr> <tr> <td>RAD</td> <td>h6</td> </tr> <tr> <td>P195</td> <td>NF1</td> </tr> <tr> <td>Bright</td> <td></td> </tr> </table>	CARBIDE	45°	2FL	SQ	RAD	h6	P195	NF1	Bright			
CARBIDE	45°													
2FL	SQ													
RAD	h6													
P195	NF1													
Bright														
<table border="1"> <tr> <td>STEEL</td> <td>STAINLESS</td> <td>CAST IRON</td> <td>NON-FERROUS</td> <td>HRSA</td> <td>HARDENED STEEL</td> </tr> <tr> <td>P1 P2 P3</td> <td>M1 M2</td> <td>K1 K2</td> <td>N1 N2</td> <td>S1 S2</td> <td>H1 H2</td> </tr> </table>	STEEL	STAINLESS	CAST IRON	NON-FERROUS	HRSA	HARDENED STEEL	P1 P2 P3	M1 M2	K1 K2	N1 N2	S1 S2	H1 H2		
STEEL	STAINLESS	CAST IRON	NON-FERROUS	HRSA	HARDENED STEEL									
P1 P2 P3	M1 M2	K1 K2	N1 N2	S1 S2	H1 H2									

● Best ○ Good

Series 2010 250 | 2FL | Square and Radius

Diameter(D ₁)	LOC(L ₁)	OAL(L)	Shank(D)	Radius(R)	Bright	NF1
1/8	1/4	1-1/2	1/8	-	312896	312900
1/8	1/4	1-1/2	1/8	0.010	-	312902
1/8	5/16	1-1/2	1/8	-	312904	312908
1/8	3/8	1-1/2	1/8	-	312911	312924
1/8	3/8	1-1/2	1/8	0.010	-	312915
1/8	3/8	1-1/2	1/8	0.020	-	312918
1/8	3/8	1-1/2	1/8	0.030	-	312922
1/8	1/2	2	1/8	-	312926	312928
1/8	5/8	2	1/8	-	312930	312934
1/8	3/4	2	1/8	-	312937	312939
1/8	1	2-1/2	1/8	-	312942	312944
5/32	5/16	2	3/16	-	312946	312948
5/32	9/16	2	3/16	-	312952	312955
3/16	5/16	2	3/16	-	312958	312960
3/16	5/16	2	3/16	0.020	-	312964
3/16	5/16	3	3/16	-	-	312966
3/16	3/8	2	3/16	-	312970	312973
3/16	5/8	2-1/2	3/16	-	312976	312979
3/16	5/8	2-1/2	3/16	0.010	-	312981
3/16	5/8	2-1/2	3/16	0.020	-	312984
3/16	5/8	2-1/2	3/16	0.030	-	312986
3/16	3/4	2-1/2	3/16	-	312988	312990
3/16	1	2-1/2	3/16	-	312993	312995
7/32	3/8	2-1/2	1/4	-	312997	313000
7/32	3/4	2-1/2	1/4	-	313002	313006
1/4	3/8	2-1/2	1/4	-	313010	313013
1/4	3/8	2-1/2	1/4	0.015	-	313015
1/4	3/8	2-1/2	1/4	0.020	-	313017
1/4	3/8	2-1/2	1/4	0.030	-	313021
1/4	3/8	2-1/2	1/4	0.060	-	313024
1/4	1/2	2-1/2	1/4	-	313028	313031
1/4	5/8	2-1/2	1/4	-	313033	313035
1/4	3/4	2-1/2	1/4	-	313037	313039
1/4	3/4	2-1/2	1/4	0.010	-	313042
1/4	3/4	2-1/2	1/4	0.015	-	313044
1/4	3/4	2-1/2	1/4	0.020	-	313047
1/4	3/4	2-1/2	1/4	0.030	-	313049
1/4	3/4	2-1/2	1/4	0.045	-	313052
1/4	3/4	2-1/2	1/4	0.060	-	313054
1/4	1	2-1/2	1/4	-	313056	313060
1/4	1-1/8	2-1/2	1/4	-	313063	313067
1/4	1-1/4	3	1/4	-	313070	313072
1/4	1-1/2	3	1/4	-	313074	313077
1/4	2	4	1/4	-	313079	313083
9/32	7/16	2-1/2	5/16	-	313087	313089

*bold numbers are EDPs for ordering

INTRO

MILLING

SPECIALTY

HOLEMAKING

THREADING

INSERTS

ADVANCED PERFORMANCE

Solid Carbide End Mills For Aluminum And Non-Ferrous Materials



INTRO

MILLING

SPECIALTY

HOLEMAKING

THREADING

INSERTS

Series 2010 250 | 2FL | Square and Radius

Diameter(D ₁)	LOC(L ₁)	OAL(L)	Shank(D)	Radius(R)	Bright	NF1
9/32	13/16	2-1/2	5/16	-	313091	313094
5/16	7/16	2-1/2	5/16	-	313096	313098
5/16	7/16	2-1/2	5/16	0.020	-	313100
5/16	7/16	2-1/2	5/16	0.030	-	313102
5/16	1/2	2-1/2	5/16	-	313104	313108
5/16	13/16	2-1/2	5/16	-	313111	313114
5/16	13/16	2-1/2	5/16	0.020	-	313117
5/16	13/16	2-1/2	5/16	0.030	-	313120
5/16	13/16	2-1/2	5/16	0.060	-	313122
5/16	1-1/8	2-1/2	5/16	-	313124	313127
5/16	1-1/4	3-1/2	5/16	-	313129	313133
5/16	1-1/2	3-1/2	5/16	-	313136	313140
5/16	2-1/8	4	5/16	-	313144	313148
11/32	1/2	2-1/2	3/8	-	313150	313153
11/32	1	2-1/2	3/8	-	313157	313159
3/8	1/2	2-1/2	3/8	-	313162	313164
3/8	1/2	2-1/2	3/8	0.020	-	313166
3/8	1/2	2-1/2	3/8	0.030	-	313169
3/8	1/2	2-1/2	3/8	0.045	-	313172
3/8	5/8	2-1/2	3/8	-	313175	313177
3/8	3/4	2-1/2	3/8	-	313181	313183
3/8	1	2-1/2	3/8	-	313187	313189
3/8	1	2-1/2	3/8	0.020	-	313192
3/8	1	2-1/2	3/8	0.030	-	313194
3/8	1	2-1/2	3/8	0.045	-	313198
3/8	1	2-1/2	3/8	0.060	-	313201
3/8	1-1/4	3	3/8	-	313203	313207
3/8	1-1/2	4	3/8	-	313209	313212
3/8	2	4	3/8	-	313215	313218
3/8	2-1/2	6	3/8	-	313222	313225
13/32	9/16	2-3/4	7/16	-	313229	313231
13/32	1	2-3/4	7/16	-	313234	313238
7/16	9/16	2-3/4	7/16	-	313241	313244
7/16	1	2-3/4	7/16	-	313246	313249
7/16	2	4	7/16	-	313252	313254
15/32	5/8	3	1/2	-	313257	313260
15/32	1-1/4	3	1/2	-	313264	313266
1/2	5/8	3	1/2	-	313270	313274
1/2	5/8	3	1/2	0.015	-	313276
1/2	5/8	3	1/2	0.020	-	313278
1/2	5/8	3	1/2	0.030	-	313281
1/2	5/8	3	1/2	0.060	-	313284
1/2	5/8	3	1/2	0.090	-	313288
1/2	5/8	6	1/2	-	313978	313982
1/2	3/4	3	1/2	-	313291	313293
1/2	1	3	1/2	-	313297	313300
1/2	1-1/4	3	1/2	-	313302	313304
1/2	1-1/4	3	1/2	0.015	-	313307
1/2	1-1/4	3	1/2	0.020	-	313311
1/2	1-1/4	3	1/2	0.030	-	313315
1/2	1-1/4	3	1/2	0.060	-	313317
1/2	1-1/4	3	1/2	0.090	-	313321
1/2	1-1/4	3	1/2	0.120	-	313325
1/2	1-1/2	4	1/2	-	313329	313331
1/2	2	4	1/2	-	313333	313337
1/2	2-1/4	6	1/2	-	313339	313341
1/2	2-1/2	6	1/2	-	313344	313346
1/2	3-1/4	6	1/2	-	313348	313350
1/2	4	8	1/2	-	313353	313356
5/8	3/4	3-1/2	5/8	-	313358	313362
5/8	3/4	5	5/8	-	314027	314030
5/8	3/4	6	5/8	-	314037	314039
5/8	1-1/4	3-1/2	5/8	-	313366	313370
5/8	1-5/8	3-1/2	5/8	-	313372	313374
5/8	1-5/8	3-1/2	5/8	0.030	-	313378
5/8	1-5/8	3-1/2	5/8	0.060	-	313381
5/8	1-5/8	3-1/2	5/8	0.090	-	313383
5/8	1-5/8	3-1/2	5/8	0.120	-	313385
5/8	2	5	5/8	-	313389	313392
5/8	2-1/2	5	5/8	-	313395	313397
5/8	2-3/4	5	5/8	-	313399	313401
5/8	3-1/4	6	5/8	-	313403	313406
5/8	4	8	5/8	-	313410	313414
3/4	1	4	3/4	-	313418	313422
3/4	1	4	3/4	0.060	-	313424
3/4	1	4	3/4	0.090	-	313427

*bold numbers are EDPs for ordering

ADVANCED PERFORMANCE

Solid Carbide End Mills For Aluminum And Non-Ferrous Materials



Series 2010 250 | 2FL | Square and Radius

Diameter(D ₁)	LOC(L ₁)	OAL(L)	Shank(D)	Radius(R)	Bright	NF1
3/4	1	4	3/4	0.120	-	313429
3/4	1-1/2	4	3/4	-	313431	313435
3/4	1-5/8	4	3/4	-	313439	313443
3/4	1-5/8	4	3/4	0.060	-	313447
3/4	1-5/8	4	3/4	0.090	-	313450
3/4	1-5/8	4	3/4	0.120	-	313453
3/4	2	5	3/4	-	313456	313458
3/4	2-1/4	5	3/4	-	313461	313463
3/4	2-1/2	5	3/4	-	313465	313469
3/4	3	6	3/4	-	313473	313477
3/4	3-1/4	6	3/4	-	313479	313483
3/4	3-1/2	6	3/4	-	313487	313489
3/4	4	7	3/4	-	313492	313496
3/4	5	8	3/4	-	313499	313502
1	1-1/4	5	1	-	313506	313509
1	1-1/4	6	1	-	314146	314149
1	1-1/4	7	1	-	314172	314176
1	1-1/2	5	1	-	313511	313514
1	2	5	1	-	313517	313519
1	2	5	1	0.060	-	313523
1	2	5	1	0.090	-	313526
1	2	5	1	0.120	-	313528
1	2-1/2	5	1	-	313531	313533
1	3	6	1	-	313535	313537
1	3-1/2	6	1	-	313541	313543
1	4-1/8	7	1	-	313546	313548
1	5-1/2	8	1	-	313550	313553
1-1/4	1-1/4	4-1/2	1-1/4	-	-	313555
1-1/4	2	4-1/2	1-1/4	-	-	313557
1-1/4	5	7-1/2	1-1/4	-	-	313560

*bold numbers are EDPs for ordering

Popular Custom Milling Options

- Proprietary GWS tool coatings
- Longer lengths
- Enhanced geometry
- Special shank modifications like **SAFE-LOCK®**

**CUSTOM
COMES
STANDARD**

INTRO

MILLING

SPECIALTY

HOLEMAKING

THREADING

INSERTS

Series 2010, 2012, 2014, 2015

250 | 2 FL | SQ, CR, BN, RN | Performance-AL

Material		Axial ↓	Radial →	SFM	1/8		1/4		5/16		3/8		1/2		5/8		3/4	
					RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
N	Aluminum, Brass, Copper 6061, 7050, 7075	.5 x D	1 x D	600	18336	44	9168	48	7334	53	6112	53	4584	55	3667	53	3056	53
		1.25 x D	.3 x D	720	22003	66	11002	70	8801	77	7334	77	5501	80	4401	77	3667	77
		1.5 X D	.1 x D	1200	36672	147	18336	150	14669	154	12224	154	9168	162	7334	155	6112	155
	High Silicon Aluminum 4% - 13% A242, A319, A356, A390	.5 x D	1 x D	600	18336	37	9168	40	7334	44	6112	44	4584	46	3667	44	3056	44
		1.25 x D	.3 x D	720	22003	53	11002	56	8801	63	7334	63	5501	67	4401	64	3667	64
		1.5 X D	.1 x D	1200	36672	117	18336	121	14669	132	12224	132	9168	139	7334	133	6112	133

Series 1025, 1026, 2030, 2031, 2047, 2032

350 | 3FL | SQ, CR, BN, RN | Performance-AL | GWA

Material		Axial ↓	Radial →	SFM	1/8		1/4		5/16		3/8		1/2		5/8		3/4	
					RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
N	Aluminum, Brass, Copper 6061, 7050, 7075	.5 x D	1 x D	600	18336	44	9168	48	7334	53	6112	53	4584	55	3667	53	3056	53
		1.25 x D	.3 x D	720	22003	66	11002	70	8801	77	7334	77	5501	80	4401	77	3667	77
		1.5 X D	.1 x D	1200	36672	147	18336	150	14669	154	12224	154	9168	162	7334	155	6112	155
	High Silicon Aluminum 4% - 13% A242, A319, A356, A390	.5 x D	1 x D	600	18336	37	9168	40	7334	44	6112	44	4584	46	3667	44	3056	44
		1.25 x D	.3 x D	720	22003	53	11002	56	8801	63	7334	63	5501	67	4401	64	3667	64
		1.5 X D	.1 x D	1200	36672	117	18336	121	14669	132	12224	132	9168	139	7334	133	6112	133