

ADVANCED PERFORMANCE

Solid Carbide End Mills For Stainless, Titanium, Steel And Other Ferrous Alloys



INTRO

MILLING

SPECIALTY

HOLEMAKING

THREADING

INSERTS



FEATURES/DESCRIPTION	APPLICATION	FEATURES								
<h2>PYSTL</h2> <h3>Unequal Index End Mill</h3> <ul style="list-style-type: none"> Premium sub-micron grade carbide substrate for wear resistance Unequal index tool for Titanium, stainless and other gummy materials Suited for slotting and profiling milling operations Specialized edge honing SafeLock® shank available upon request 		<table border="1"> <tr> <td>CARBIDE</td> <td>VAR</td> </tr> <tr> <td>4FL</td> <td>RAD</td> </tr> <tr> <td>SQ</td> <td>h6</td> </tr> <tr> <td>P185</td> <td>FX3</td> </tr> </table>	CARBIDE	VAR	4FL	RAD	SQ	h6	P185	FX3
CARBIDE	VAR									
4FL	RAD									
SQ	h6									
P185	FX3									

STEEL			STAINLESS		CAST IRON		NON-FERROUS		HBSA		HARDENED STEEL	
P1	P2	P3	M1	M2	K1	K2	N1	N2	S1	S2	H1	H2
●	●	○	○	●	○	○				●		

● Best ○ Good

Series 2100 | 438 | 4FL | Square and Radius | PYSTL

Diameter(D ₁)	LOC(L ₁)	OAL(L)	Shank(D)	Radius(R)	EDP
1/8	1/4	2	1/8	-	310001
1/8	1/4	2	1/8	0.010	310005
1/8	1/4	2	1/8	0.020	310007
1/8	1/4	2	1/8	0.030	310009
1/8	1/2	2	1/8	-	310013
1/8	1/2	2	1/8	0.010	310017
1/8	1/2	2	1/8	0.020	310019
1/8	1/2	2	1/8	0.030	310023
1/8	3/4	2-1/2	1/8	-	310025
1/8	3/4	2-1/2	1/8	0.010	310029
1/8	3/4	2-1/2	1/8	0.020	310031
1/8	3/4	2-1/2	1/8	0.030	310034
3/16	5/16	2	3/16	-	310037
3/16	5/16	2	3/16	0.010	310040
3/16	5/16	2	3/16	0.020	310044
3/16	5/16	2	3/16	0.030	310048
3/16	9/16	2	3/16	-	310050
3/16	9/16	2	3/16	0.010	310054
3/16	9/16	2	3/16	0.020	310058
3/16	9/16	2	3/16	0.030	310060
3/16	3/4	2-1/2	3/16	-	310063
3/16	3/4	2-1/2	3/16	0.010	310066
3/16	3/4	2-1/2	3/16	0.020	310069
3/16	3/4	2-1/2	3/16	0.030	310071
1/4	3/8	2	1/4	-	310074
1/4	3/8	2	1/4	0.010	310078
1/4	3/8	2	1/4	0.020	310081
1/4	3/8	2	1/4	0.030	310085
1/4	3/8	2	1/4	0.060	310089
1/4	1/2	2-1/2	1/4	-	310093
1/4	1/2	2-1/2	1/4	0.010	310097
1/4	1/2	2-1/2	1/4	0.020	310100
1/4	1/2	2-1/2	1/4	0.030	310103
1/4	1/2	2-1/2	1/4	0.060	310105
1/4	3/4	2-1/2	1/4	-	310109
1/4	3/4	2-1/2	1/4	0.010	310113
1/4	3/4	2-1/2	1/4	0.020	310115
1/4	3/4	2-1/2	1/4	0.030	310117
1/4	3/4	2-1/2	1/4	0.060	310121
1/4	1	3	1/4	-	310125
1/4	1	3	1/4	0.010	310128
1/4	1	3	1/4	0.020	310130
1/4	1	3	1/4	0.030	310133
1/4	1	3	1/4	0.060	310136
1/4	1-1/4	3	1/4	-	310139

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Series 2100 438 | 4FL | Square and Radius | PYSTL

Diameter(D ₁)	LOC(L ₁)	OAL(L)	Shank(D)	Radius(R)	EDP
1/4	1-1/4	3	1/4	0.010	310141
1/4	1-1/4	3	1/4	0.020	310144
1/4	1-1/4	3	1/4	0.030	310147
1/4	1-1/4	3	1/4	0.060	310150
5/16	7/16	2	5/16	-	310154
5/16	7/16	2	5/16	0.010	310158
5/16	7/16	2	5/16	0.020	310160
5/16	7/16	2	5/16	0.030	310162
5/16	7/16	2	5/16	0.060	310166
5/16	13/16	2-1/2	5/16	-	310168
5/16	13/16	2-1/2	5/16	0.010	310172
5/16	13/16	2-1/2	5/16	0.020	310176
5/16	13/16	2-1/2	5/16	0.030	310180
5/16	13/16	2-1/2	5/16	0.060	310182
5/16	1	3	5/16	-	310186
5/16	1	3	5/16	0.010	310190
5/16	1	3	5/16	0.020	310194
5/16	1	3	5/16	0.030	310198
5/16	1	3	5/16	0.060	310201
3/8	1/2	2	3/8	-	310203
3/8	1/2	2	3/8	0.010	310205
3/8	1/2	2	3/8	0.020	310207
3/8	1/2	2	3/8	0.030	310210
3/8	1/2	2	3/8	0.060	310212
3/8	1/2	2	3/8	0.090	310214
3/8	1	2-1/2	3/8	-	310217
3/8	1	2-1/2	3/8	0.010	310220
3/8	1	2-1/2	3/8	0.020	310222
3/8	1	2-1/2	3/8	0.030	310224
3/8	1	2-1/2	3/8	0.060	310226
3/8	1	2-1/2	3/8	0.090	310229
3/8	1-1/4	3	3/8	-	310231
3/8	1-1/4	3	3/8	0.010	310233
3/8	1-1/4	3	3/8	0.020	310236
3/8	1-1/4	3	3/8	0.030	310238
3/8	1-1/4	3	3/8	0.060	310240
3/8	1-1/4	3	3/8	0.090	310243
3/8	1-1/2	3	3/8	-	310245
3/8	1-1/2	3	3/8	0.010	310247
3/8	1-1/2	3	3/8	0.020	310251
3/8	1-1/2	3	3/8	0.030	310255
3/8	1-1/2	3	3/8	0.060	310257
3/8	1-1/2	3	3/8	0.090	310259
1/2	5/8	2-1/2	1/2	-	310263
1/2	5/8	2-1/2	1/2	0.020	310267
1/2	5/8	2-1/2	1/2	0.030	310269
1/2	5/8	2-1/2	1/2	0.060	310273
1/2	5/8	2-1/2	1/2	0.090	310275
1/2	5/8	2-1/2	1/2	0.120	310279
1/2	1	3	1/2	-	310281
1/2	1	3	1/2	0.020	310284
1/2	1	3	1/2	0.030	310288
1/2	1	3	1/2	0.060	310290
1/2	1	3	1/2	0.090	310293
1/2	1	3	1/2	0.120	310295
1/2	1-1/4	3	1/2	-	310297
1/2	1-1/4	3	1/2	0.020	310301
1/2	1-1/4	3	1/2	0.030	310303
1/2	1-1/4	3	1/2	0.060	310307
1/2	1-1/4	3	1/2	0.090	310310
1/2	1-1/4	3	1/2	0.120	310312
1/2	1-5/8	4	1/2	-	310316
1/2	1-5/8	4	1/2	0.020	310318
1/2	1-5/8	4	1/2	0.030	310322
1/2	1-5/8	4	1/2	0.060	310325
1/2	1-5/8	4	1/2	0.090	310328
1/2	1-5/8	4	1/2	0.120	310332
1/2	2	4	1/2	-	310334
1/2	2	4	1/2	0.020	310338
1/2	2	4	1/2	0.030	310342
1/2	2	4	1/2	0.060	310346
1/2	2	4	1/2	0.090	310350
1/2	2	4	1/2	0.120	310354
5/8	3/4	3	5/8	-	310356
5/8	3/4	3	5/8	0.030	310360
5/8	3/4	3	5/8	0.060	310364

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Series 2100 **438 | 4FL | Square and Radius | PYSTL**

Diameter(D ₁)	LOC(L ₁)	OAL(L)	Shank(D)	Radius(R)	EDP
5/8	3/4	3	5/8	0.090	310367
5/8	3/4	3	5/8	0.120	310370
5/8	1-1/4	3-1/2	5/8	-	310374
5/8	1-1/4	3-1/2	5/8	0.030	310376
5/8	1-1/4	3-1/2	5/8	0.060	310379
5/8	1-1/4	3-1/2	5/8	0.090	310383
5/8	1-1/4	3-1/2	5/8	0.120	310385
5/8	1-5/8	3-1/2	5/8	-	310388
5/8	1-5/8	3-1/2	5/8	0.030	310392
5/8	1-5/8	3-1/2	5/8	0.060	310395
5/8	1-5/8	3-1/2	5/8	0.090	310397
5/8	1-5/8	3-1/2	5/8	0.120	310400
5/8	2-1/8	4	5/8	-	310403
5/8	2-1/8	4	5/8	0.030	310407
5/8	2-1/8	4	5/8	0.060	310410
5/8	2-1/8	4	5/8	0.090	310412
5/8	2-1/8	4	5/8	0.120	310414
5/8	2-1/2	5	5/8	-	310416
5/8	2-1/2	5	5/8	0.030	310420
5/8	2-1/2	5	5/8	0.060	310422
5/8	2-1/2	5	5/8	0.090	310425
5/8	2-1/2	5	5/8	0.120	310429
3/4	1	3	3/4	-	310431
3/4	1	3	3/4	0.030	310434
3/4	1	3	3/4	0.060	310437
3/4	1	3	3/4	0.090	310441
3/4	1	3	3/4	0.120	310444
3/4	1	3	3/4	0.250	310447
3/4	1-5/8	4	3/4	-	310451
3/4	1-5/8	4	3/4	0.030	310455
3/4	1-5/8	4	3/4	0.060	310458
3/4	1-5/8	4	3/4	0.090	310461
3/4	1-5/8	4	3/4	0.120	310463
3/4	1-5/8	4	3/4	0.250	310467
3/4	2-1/4	5	3/4	-	310469
3/4	2-1/4	5	3/4	0.030	310473
3/4	2-1/4	5	3/4	0.060	310476
3/4	2-1/4	5	3/4	0.090	310479
3/4	2-1/4	5	3/4	0.120	310483
3/4	2-1/4	5	3/4	0.250	310485
3/4	2-3/4	5	3/4	-	310489
3/4	2-3/4	5	3/4	0.030	310491
3/4	2-3/4	5	3/4	0.060	310494
3/4	2-3/4	5	3/4	0.090	310496
3/4	2-3/4	5	3/4	0.120	310498
3/4	2-3/4	5	3/4	0.250	310502
3/4	3-1/4	6	3/4	-	310505
3/4	3-1/4	6	3/4	0.030	310509
3/4	3-1/4	6	3/4	0.060	310513
3/4	3-1/4	6	3/4	0.090	310515
3/4	3-1/4	6	3/4	0.120	310519
3/4	3-1/4	6	3/4	0.250	310521
1	1-1/4	4	1	-	310525
1	1-1/4	4	1	0.030	310529
1	1-1/4	4	1	0.060	310531
1	1-1/4	4	1	0.090	310534
1	1-1/4	4	1	0.120	310536
1	1-1/4	4	1	0.250	310538
1	2	4	1	-	310541
1	2	4	1	0.030	310545
1	2	4	1	0.060	310549
1	2	4	1	0.090	310553
1	2	4	1	0.120	310557
1	2	4	1	0.250	310559
1	2-5/8	5	1	-	310562
1	2-5/8	5	1	0.030	310565
1	2-5/8	5	1	0.060	310567
1	2-5/8	5	1	0.090	310569
1	2-5/8	5	1	0.120	310573
1	2-5/8	5	1	0.250	310576
1	3-1/4	6	1	-	310578
1	3-1/4	6	1	0.030	310582
1	3-1/4	6	1	0.060	310586
1	3-1/4	6	1	0.090	310590
1	3-1/4	6	1	0.120	310592
1	3-1/4	6	1	0.250	310596

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Series 2100 438 | 4FL | Square and Radius | PYSTL

Diameter(D ₁)	LOC(L ₁)	OAL(L)	Shank(D)	Radius(R)	EDP
1	4-1/4	7	1	-	310600
1	4-1/4	7	1	0.030	310602
1	4-1/4	7	1	0.060	310605
1	4-1/4	7	1	0.090	310609
1	4-1/4	7	1	0.120	310613
1	4-1/4	7	1	0.250	310617
1-1/4	1-1/2	4-1/2	1-1/4	-	310621
1-1/4	1-1/2	4-1/2	1-1/4	0.030	310624
1-1/4	1-1/2	4-1/2	1-1/4	0.060	310628
1-1/4	1-1/2	4-1/2	1-1/4	0.090	310630
1-1/4	1-1/2	4-1/2	1-1/4	0.120	310632
1-1/4	1-1/2	4-1/2	1-1/4	0.250	310636
1-1/4	2	4-1/2	1-1/4	-	310640
1-1/4	2	4-1/2	1-1/4	0.030	310642
1-1/4	2	4-1/2	1-1/4	0.060	310644
1-1/4	2	4-1/2	1-1/4	0.090	310648
1-1/4	2	4-1/2	1-1/4	0.120	310651
1-1/4	2	4-1/2	1-1/4	0.250	310654
1-1/4	2-5/8	6	1-1/4	-	310657
1-1/4	2-5/8	6	1-1/4	0.030	310661
1-1/4	2-5/8	6	1-1/4	0.060	310664
1-1/4	2-5/8	6	1-1/4	0.090	310667
1-1/4	2-5/8	6	1-1/4	0.120	310671
1-1/4	2-5/8	6	1-1/4	0.250	310673
1-1/4	4-1/2	7	1-1/4	-	310676
1-1/4	4-1/2	7	1-1/4	0.030	310680
1-1/4	4-1/2	7	1-1/4	0.060	310683
1-1/4	4-1/2	7	1-1/4	0.090	310687
1-1/4	4-1/2	7	1-1/4	0.120	310690
1-1/4	4-1/2	7	1-1/4	0.250	310693

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Popular Custom Milling Options

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

CUSTOM
COMES
STANDARD

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INSERTS

Series 2100, 2105, 2115, 2117

438 | 4 FL | SQ, CR, BN, CB | PYSTL

Material	Axial ↓	Radial →	SFM	1/8		1/4		3/8		1/2		5/8		3/4	
				RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
P Carbon Steel 10XX, 11XX, 12XX, 13XX Alloy Steel 4140, 8620 Tool Steel A2, A3, D2, H11, H13	1 x D	1 x D	220	6723	13	3362	13	2241	16	1681	17	1345	16	1121	15
	1.25 x D	.3 x D	264	8068	19	4034	19	2689	23	2017	24	1614	23	1345	21
	1.5 X D	.1 x D	343	10488	42	5244	42	3496	50	2622	53	2098	51	1748	47
	1 x D	1 x D	180	5501	21	2750	16	1834	13	1375	13	1100	13	917	12
	1.25 x D	.3 x D	225	6876	31	3438	24	2292	19	1719	20	1375	19	1146	17
	1.5 X D	.1 x D	270	8251	63	4126	47	2750	38	2063	40	1650	38	1375	35
	1 x D	.5 x D	180	5501	10	2750	10	1834	13	1375	13	1100	13	917	12
	1.25 x D	.3 x D	225	6876	16	3438	16	2292	19	1719	20	1375	19	1146	17
	1.5 X D	.1 x D	270	8251	31	4126	31	2750	38	2063	40	1650	38	1375	35
M SS 300 & 400 Series 303, 304, 316, 420, 416 Precipitation SS 15-5, 16-6, 17-4, 17-5	.75 x D	1 x D	140	4278	7	2139	7	1426	8	1070	9	856	8	713	8
	1.25 x D	.3 x D	185	5654	11	2827	11	1885	13	1413	14	1131	13	942	12
	1.5 x D	.1 x D	230	7039	23	3519	23	2346	28	1760	29	1408	28	1173	25
	0.5	1 x D	115	3514	5	1757	5	1171	7	879	7	703	7	586	6
	1.25 x D	.3 x D	180	5501	10	2750	10	1834	12	1375	13	1100	12	917	11
	1.5 x D	.1 x D	250	7640	24	3820	24	2547	28	1910	30	1528	29	1273	26
K Cast Iron - Grey GG-10 to GG-40 Cast Iron- Ductile GGG-40, to GGG-70	1 x D	1 x D	100	3056	6	1528	6	1019	7	764	7	611	7	509	6
	1.25 x D	.3 x D	125	3820	8	1910	8	1273	10	955	10	764	10	637	9
	1.5 X D	.1 x D	163	4966	18	2483	18	1655	22	1242	23	993	22	828	20
	.75 x D	1 x D	155	4737	8	2368	8	1579	10	1184	10	947	10	789	9
	1.25 x D	.3 x D	180	5501	11	2750	11	1834	14	1375	14	1100	14	917	13
	1.5 x D	.1 x D	216	6601	23	3300	23	2200	27	1650	29	1320	27	1100	25
S High Temp Alloys Inconel 718, Hastalloy, Waspalloy, A286, CoCr Titanium Alloy Ti-6Al4V Grades (5-38)	.25 x D	.4 x D	70	2139	3	1070	3	713	4	535	4	428	4	357	3
	1.25 x D	.2 x D	80	2445	4	1222	4	815	5	611	5	489	5	407	5
	1.5 x D	.07 x D	125	3820	11	1910	11	1273	13	955	14	764	14	637	12
	0.5	1 x D	180	5501	8	2750	8	1834	9	1375	10	1100	9	917	9
	1.25 x D	.3 x D	225	6876	12	3438	12	2292	14	1719	15	1375	14	1146	13
	1.5 x D	.1 x D	360	11002	31	5501	31	3667	37	2750	39	2200	37	1834	34

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