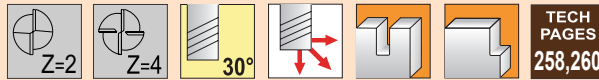


Series 220R, 230R

.0625" - .5000"
(1.588mm - 12.700mm)



TOLERANCES	
d1	+0.000" - .002" (+0.000 - .050mm)
d2	h6
r	+0.001" - .001" (+0.025 - .025mm)

Standard Length - Corner Radius

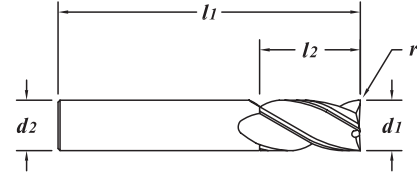
Solid submicron grain carbide end mill - center cutting

For stronger corners and part radius

Extremely versatile

TiALN Coating - page 202

Extended Length - page 225



MATERIAL HARDNESS (Rc)

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(220R) 2 Flute EDP#	(230R) 4 Flute EDP#	d1 † Diameter		d2 Shank Diameter	l1 Overall Length	l2 Flute Length	r Corner Radius	1-11	12-24	25-49	50-100	
		Decimal	Metric									
79580	80580	.0625	1/16"	1.588	1/8"	1-1/2"	1/4"	.010"	12.88	12.32	11.76	11.20
79590	80590	.0625	1/16"	1.588	1/8"	1-1/2"	1/4"	.015"	12.88	12.32	11.76	11.20
79600	80600	.0938	3/32"	2.383	1/8"	1-1/2"	3/8"	.010"	12.32	11.78	11.25	10.71
79610	80610	.0938	3/32"	2.383	1/8"	1-1/2"	3/8"	.015"	12.32	11.78	11.25	10.71
79620	80620	.0938	3/32"	2.383	1/8"	1-1/2"	3/8"	.020"	12.32	11.78	11.25	10.71
79000	80000	.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	.010"	11.18	10.69	10.21	9.72
79010	80010	.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	.015"	11.18	10.69	10.21	9.72
79020	80020	.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	.020"	11.18	10.69	10.21	9.72
79030	80030	.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	.030"	11.18	10.69	10.21	9.72
79040	80040	.1875	3/16"	4.763	3/16"	2"	5/8"	.010"	14.73	14.09	13.45	12.81
79050	80050	.1875	3/16"	4.763	3/16"	2"	5/8"	.015"	14.73	14.09	13.45	12.81
79060	80060	.1875	3/16"	4.763	3/16"	2"	5/8"	.020"	14.73	14.09	13.45	12.81
79070	80070	.1875	3/16"	4.763	3/16"	2"	5/8"	.030"	14.73	14.09	13.45	12.81
-	80090	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.010"	18.30	17.50	16.71	15.91
79100	80100	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.015"	18.30	17.50	16.71	15.91
79110	80110	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.020"	18.30	17.50	16.71	15.91
79120	80120	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.030"	18.30	17.50	16.71	15.91
79130	80130	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.045"	18.30	17.50	16.71	15.91
79140	80140	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.060"	18.30	17.50	16.71	15.91
79160	80160	.3125	5/16"	7.938	5/16"	2-1/2"	7/8"	.015"	23.99	22.95	21.90	20.86
79170	80170	.3125	5/16"	7.938	5/16"	2-1/2"	7/8"	.020"	23.99	22.95	21.90	20.86
79180	80180	.3125	5/16"	7.938	5/16"	2-1/2"	7/8"	.030"	23.99	22.95	21.90	20.86
79190	80190	.3125	5/16"	7.938	5/16"	2-1/2"	7/8"	.045"	23.99	22.95	21.90	20.86
79200	80200	.3125	5/16"	7.938	5/16"	2-1/2"	7/8"	.060"	23.99	22.95	21.90	20.86
-	80220	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.010"	29.36	28.08	26.81	25.53
79230	80230	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.015"	29.36	28.08	26.81	25.53
79240	80240	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.020"	29.36	28.08	26.81	25.53
79250	80250	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.030"	29.36	28.08	26.81	25.53
79260	80260	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.045"	29.36	28.08	26.81	25.53
79270	80270	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.060"	29.36	28.08	26.81	25.53
-	80290	.5000	1/2"	12.700	1/2"	3"	1"	.010"	54.65	52.27	49.90	47.52
79300	80300	.5000	1/2"	12.700	1/2"	3"	1"	.015"	54.65	52.27	49.90	47.52
79310	80310	.5000	1/2"	12.700	1/2"	3"	1"	.020"	54.65	52.27	49.90	47.52
79320	80320	.5000	1/2"	12.700	1/2"	3"	1"	.030"	54.65	52.27	49.90	47.52
79330	80330	.5000	1/2"	12.700	1/2"	3"	1"	.045"	54.65	52.27	49.90	47.52
79340	80340	.5000	1/2"	12.700	1/2"	3"	1"	.060"	54.65	52.27	49.90	47.52
79350	80350	.5000	1/2"	12.700	1/2"	3"	1"	.090"	54.65	52.27	49.90	47.52
79360	80360	.5000	1/2"	12.700	1/2"	3"	1"	.125"	54.65	52.27	49.90	47.52

(220R) 2 Flute EDP#	(230R) 4 Flute EDP#	$d1$ † Diameter		$d2$ Shank Diameter	$l1$ Overall Length	$l2$ Flute Length	r Corner Radius	1-11	12-24	25-49	50-100	
		Decimal	Metric									
79370	80370	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.015"	88.39	84.55	80.70	76.86
79380	80380	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.020"	88.39	84.55	80.70	76.86
79390	80390	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.030"	88.39	84.55	80.70	76.86
79400	80400	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.045"	88.39	84.55	80.70	76.86
79410	80410	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.060"	88.39	84.55	80.70	76.86
79420	80420	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.090"	88.39	84.55	80.70	76.86
79440	80440	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.015"	130.08	124.42	118.77	113.11
79450	80450	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.020"	130.08	124.42	118.77	113.11
79460	80460	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.030"	130.08	124.42	118.77	113.11
79470	80470	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.045"	130.08	124.42	118.77	113.11
79480	80480	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.060"	130.08	124.42	118.77	113.11
79490	80490	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.090"	130.08	124.42	118.77	113.11
79500	80500	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.125"	130.08	124.42	118.77	113.11
79630	80630	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.250"	130.08	124.42	118.77	113.11
79510	80510	1.000	1"	25.400	1"	4"	1-1/2"	.015"	225.62	215.81	206.00	196.19
79520	80520	1.000	1"	25.400	1"	4"	1-1/2"	.020"	225.62	215.81	206.00	196.19
79530	80530	1.000	1"	25.400	1"	4"	1-1/2"	.030"	225.62	215.81	206.00	196.19
79540	80540	1.000	1"	25.400	1"	4"	1-1/2"	.045"	225.62	215.81	206.00	196.19
79550	80550	1.000	1"	25.400	1"	4"	1-1/2"	.060"	225.62	215.81	206.00	196.19
79560	80560	1.000	1"	25.400	1"	4"	1-1/2"	.090"	225.62	215.81	206.00	196.19
79570	80570	1.000	1"	25.400	1"	4"	1-1/2"	.125"	225.62	215.81	206.00	196.19
79640	80640	1.000	1"	25.400	1"	4"	1-1/2"	.250"	225.62	215.81	206.00	196.19

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MATERIAL HARDNESS (Rc)

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*Tool Reconditioning
Prep Area*