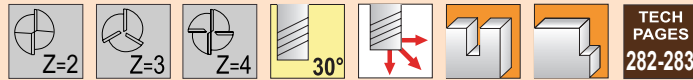


**TOLERANCES**

$d_1$	+0.000° -0.002° (+.000 -.050mm)
$d_2$	h6

**Series 220MC, 223MC, 230MC**



GENERAL PURPOSE  
END MILLS

**Standard Length - Square End**

**TiCN Coating**

Solid submicron grain carbide end mill - center cutting

Improved abrasion resistance and lubricity

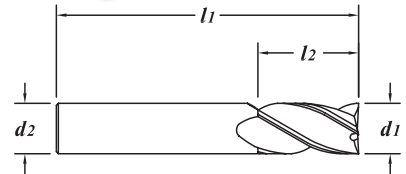
Extremely versatile

Uncoated - page 216

TiN Coating - page 218

TiALN Coating - page 220

Extended length - page 238



(220MC) 2 Flute EDP#	(223MC) 3 Flute EDP#	(230MC) 4 Flute EDP#	$d_1$ † Diameter		$d_2$ Shank Diameter	$l_1$ Overall Length	$l_2$ Flute Length	1-11	12-24	25-49	50-100	
			Decimal	Metric								
11014	12014	13014	.0312	1/32"	0.792	1/8"	1-1/2"	3/32"	13.57	12.98	12.39	11.80
11024	12024	13024	.0469	3/64"	1.191	1/8"	1-1/2"	1/8"	13.57	12.98	12.39	11.80
11034	12034	13034	.0625	1/16"	1.588	1/8"	1-1/2"	1/4"	12.78	12.22	11.67	11.11
11044	12044	13044	.0781	5/64"	1.984	1/8"	1-1/2"	1/4"	12.78	12.22	11.67	11.11
11054	12054	13054	.0938	3/32"	2.383	1/8"	1-1/2"	3/8"	12.20	11.67	11.14	10.61
11064	12064	13064	.1094	7/64"	2.779	1/8"	1-1/2"	3/8"	12.20	11.67	11.14	10.61
11074	12074	13074	.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	11.44	10.95	10.45	9.95
11084	12084	13084	.1406	9/64"	3.571	3/16"	2"	9/16"	15.78	15.09	14.41	13.72
11094	12094	13094	.1562	5/32"	3.967	3/16"	2"	9/16"	15.78	15.09	14.41	13.72
11104	12104	13104	.1719	11/64"	4.366	3/16"	2"	9/16"	15.78	15.09	14.41	13.72
11114	12114	13114	.1875	3/16"	4.763	3/16"	2"	5/8"	15.08	14.42	13.77	13.11
11124	12124	13124	.2031	13/64"	5.159	1/4"	2-1/2"	5/8"	21.65	20.71	19.77	18.83
11134	12134	13134	.2188	7/32"	5.558	1/4"	2-1/2"	5/8"	21.65	20.71	19.77	18.83
11144	12144	13144	.2344	15/64"	5.954	1/4"	2-1/2"	3/4"	21.65	20.71	19.77	18.83
11154	12154	13154	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	20.14	19.26	18.39	17.51
11164	12164	13164	.2656	17/64"	6.746	5/16"	2-1/2"	7/8"	33.32	31.87	30.42	28.97
11174	12174	13174	.2812	9/32"	7.142	5/16"	2-1/2"	7/8"	33.32	31.87	30.42	28.97
11184	12184	13184	.2969	19/64"	7.541	5/16"	2-1/2"	7/8"	33.32	31.87	30.42	28.97
11194	12194	13194	.3125	5/16"	7.938	5/16"	2-1/2"	7/8"	27.92	26.71	25.49	24.28
11204	12204	13204	.3281	21/64"	8.334	3/8"	2-1/2"	7/8"	38.27	36.61	34.94	33.28
11214	12214	13214	.3438	11/32"	8.733	3/8"	2-1/2"	7/8"	38.27	36.61	34.94	33.28
11224	12224	13224	.3594	23/64"	9.129	3/8"	2-1/2"	7/8"	38.27	36.61	34.94	33.28
11234	12234	13234	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	33.20	31.76	30.31	28.87
11244	12244	13244	.3906	25/64"	9.921	7/16"	2-3/4"	7/8"	45.79	43.80	41.81	39.82
11254	12254	13254	.4062	13/32"	10.317	7/16"	2-3/4"	7/8"	45.79	43.80	41.81	39.82
11264	-	13264	.4219	27/64"	10.716	7/16"	2-3/4"	7/8"	45.79	43.80	41.81	39.82
11274	12274	13274	.4375	7/16"	11.113	7/16"	2-3/4"	1"	40.41	38.65	36.90	35.14
11284	-	13284	.4531	29/64"	11.509	1/2"	3"	1"	59.00	56.43	53.87	51.30
11294	12294	13294	.4688	15/32"	11.908	1/2"	3"	1"	59.00	56.43	53.87	51.30
-	12304	13304	.4844	31/64"	12.304	1/2"	3"	1"	59.00	56.43	53.87	51.30
11314	12314	13314	.5000	1/2"	12.700	1/2"	3"	1"	50.62	48.42	46.22	44.02
11324	12324	13324	.5625	9/16"	14.288	9/16"	3-1/2"	1-1/4"	85.28	81.58	77.87	74.16
11334	12334	13334	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	94.73	90.61	86.49	82.37
11344	-	13344	.6875	11/16"	17.463	3/4"	4"	1-1/2"	151.46	144.87	138.29	131.70
11354	12354	13354	.7500	3/4"	19.050	3/4"	4"	1-1/2"	135.01	129.14	123.27	117.40
11364	-	13364	.8750	7/8"	22.225	7/8"	4"	1-1/2"	195.14	186.66	178.17	169.69
11374	12374	13374	1.000	1"	25.400	1"	4"	1-1/2"	202.04	193.26	184.47	175.69
-	-	13394	1.250	1-1/4"	31.750	1-1/4"	4-1/2"	2"	562.93	538.45	513.98	489.50

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MATERIAL HARDNESS (Rc)

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