

TOLERANCES

<i>d1</i>	+ .000" - .002" (+.000mm - .050mm)
<i>d2</i>	- .0001" - .0004" (-.0025 - .0100mm)
<i>r</i>	+ .001" - .001" (+.025 - .025mm)

Technical information: page 236-237



NEW SERIES

V5 - 5 Flute

.2362" - .3150"
(6.000mm - 8.000mm)

**HIGH PERFORMANCE
END MILLS**

Variable Helix End Mill - AlCrN-based Coated

Solid submicron grain carbide end mill - center cutting

Recommended for Titanium, Inconel, and Stainless Steel

PCT (Polish Carbide Treatment) enhances tool life by 20%

Minimizes burr on part

Helix geometry varies over length of flutes

Staggered flutes to control harmonics

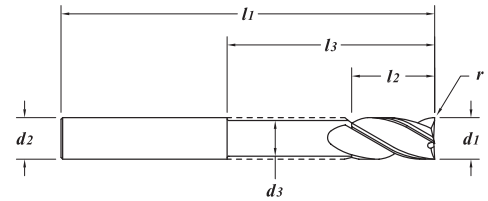
Variable flute design helps with chip evacuation in slots and pockets

Variable rake aids in chip formation

12mm and larger tools offered with weldon flat

Smaller diameters can be modified with a flat within 48 hours

The combination of an extended flute length with a weldon flat may cause the flute washout to reach inside some end mill holders



EDP#	Diameter	Shank Diameter	Overall Length	Flute Length	Corner Radius	Reach Length	Neck Diameter				
								1-11	12-24	25-49	50-100
50000	.2362"	6.000	50	13	-	-	-	20.99	20.08	19.16	18.25
50001	.2362"	6.000	50	13	0.5	-	-	24.27	23.21	22.16	21.10
50002	.2362"	6.000	65	19	-	-	-	23.66	22.63	21.60	20.57
50003	.2362"	6.000	65	19	0.5	-	-	26.90	25.73	24.56	23.39
50004	.2362"	6.000	65	13	-	20	5.4	31.56	30.18	28.81	27.44
50005	.2362"	6.000	65	13	0.5	20	5.4	34.80	33.29	31.77	30.26
50006	.2362"	6.000	65	13	1.0	20	5.4	34.80	33.29	31.77	30.26
50007	.2500" 1/4"	6.350	2"	3/8"	-	-	-	20.14	19.26	18.39	17.51
50008	.2500" 1/4"	6.350	2"	3/8"	.015"	-	-	23.36	22.34	21.33	20.31
50009	.2500" 1/4"	6.350	2"	3/8"	.030"	-	-	23.36	22.34	21.33	20.31
50011	.2500" 1/4"	6.350	2-1/2"	3/4"	-	-	-	22.84	21.85	20.85	19.86
50012	.2500" 1/4"	6.350	2-1/2"	3/4"	.015"	-	-	25.86	24.74	23.61	22.49
50013	.2500" 1/4"	6.350	2-1/2"	3/4"	.020"	-	-	25.86	24.74	23.61	22.49
50014	.2500" 1/4"	6.350	2-1/2"	3/4"	.030"	-	-	25.86	24.74	23.61	22.49
50015	.2500" 1/4"	6.350	3"	1"	-	-	-	34.88	33.36	31.85	30.33
50016	.2500" 1/4"	6.350	3"	1"	.030"	-	-	38.33	36.66	35.00	33.33
50017	.2500" 1/4"	6.350	4"	1/2"	.015"	1-1/4"	.235"	50.13	47.95	45.77	43.59
50018	.3125" 5/16"	7.938	2-1/2"	13/16"	-	-	-	32.57	31.15	29.74	28.32
50019	.3125" 5/16"	7.938	2-1/2"	13/16"	.015"	-	-	35.06	33.54	32.01	30.49
50021	.3125" 5/16"	7.938	2-1/2"	13/16"	.020"	-	-	35.06	33.54	32.01	30.49
50022	.3125" 5/16"	7.938	2-1/2"	13/16"	.030"	-	-	35.06	33.54	32.01	30.49
50023	.2756"	7.000	65	22	0.2	-	-	41.63	39.82	38.01	36.20
50024	.3150"	8.000	65	22	0.2	-	-	36.37	34.79	33.21	31.63
50025	.3150"	8.000	65	22	0.5	-	-	36.37	34.79	33.21	31.63
50026	.3150"	8.000	75	19	-	26	7.2	56.48	54.02	51.57	49.11
50027	.3150"	8.000	75	19	0.5	26	7.2	61.11	58.45	55.80	53.14
50028	.3150"	8.000	75	19	1.0	26	7.2	61.11	58.45	55.80	53.14

continued →

V5 - 5 Flute (continued)

.3750" - .7087"
(9.525mm - 18.000mm)

HIGH PERFORMANCE
END MILLS

EDP#		$d1$ † Diameter		$d2$ Shank Diameter	$l1$ Overall Length	$l2$ Flute Length	r Corner Radius	$l3$ Reach Length	$d3$ Neck Diameter	1-11	12-24	25-49	50-100	
(plain)	(weldon)	Decimal	Metric											
50029	-	.3750"	3/8"	9.525	3/8"	2"	1/2"	-	-	-	32.89	31.46	30.03	28.60
50031	-	.3750"	3/8"	9.525	3/8"	2"	1/2"	.015"	-	-	37.65	36.01	34.38	32.74
50032	-	.3750"	3/8"	9.525	3/8"	2"	1/2"	.020"	-	-	37.65	36.01	34.38	32.74
50033	-	.3750"	3/8"	9.525	3/8"	2"	1/2"	.030"	-	-	37.65	36.01	34.38	32.74
50034	-	.3750"	3/8"	9.525	3/8"	2-1/2"	1"	-	-	-	38.43	36.76	35.09	33.42
50035	-	.3750"	3/8"	9.525	3/8"	2-1/2"	1"	.015"	-	-	40.94	39.16	37.38	35.60
50036	-	.3750"	3/8"	9.525	3/8"	2-1/2"	1"	.020"	-	-	40.94	39.16	37.38	35.60
50037	-	.3750"	3/8"	9.525	3/8"	2-1/2"	1"	.030"	-	-	40.94	39.16	37.38	35.60
50038	-	.3750"	3/8"	9.525	3/8"	2-1/2"	1"	.060"	-	-	40.94	39.16	37.38	35.60
50039	-	.3750"	3/8"	9.525	3/8"	4"	2"	-	-	-	55.45	53.04	50.63	48.22
50041	-	.3750"	3/8"	9.525	3/8"	4"	2"	.030"	-	-	60.64	58.00	55.37	52.73
50042	-	.3750"	3/8"	9.525	3/8"	4"	7/8"	.015"	1-7/8"	.355"	72.36	69.21	66.07	62.92
50043	-	.3937"		10.000	10.0	70	22	-	-	-	46.09	44.09	42.08	40.08
50044	-	.3937"		10.000	10.0	70	22	0.5	-	-	49.44	47.29	45.14	42.99
50045	-	.3937"		10.000	10.0	75	22	-	32	9.0	63.88	61.11	58.33	55.55
50046	-	.3937"		10.000	10.0	75	22	0.5	32	9.0	68.91	65.91	62.92	59.92
50047	-	.3937"		10.000	10.0	75	22	1.0	32	9.0	68.91	65.91	62.92	59.92
50484	50485	.4724"		12.000	12.0	75	25	-	-	-	59.86	57.26	54.65	52.05
50486	50487	.4724"		12.000	12.0	75	25	0.5	-	-	72.81	69.64	66.48	63.31
50048	50299	.4724"		12.000	12.0	75	32	-	-	-	59.86	57.26	54.65	52.05
50049	50300	.4724"		12.000	12.0	75	32	0.5	-	-	72.81	69.64	66.48	63.31
50051	50301	.4724"		12.000	12.0	100	26	-	38	10.8	91.67	87.68	83.70	79.71
50052	50302	.4724"		12.000	12.0	100	26	0.5	38	10.8	96.39	92.20	88.01	83.82
50053	50303	.4724"		12.000	12.0	100	26	1.0	38	10.8	96.39	92.20	88.01	83.82
50054	50304	.5000"	1/2"	12.700	1/2"	2-1/2"	5/8"	-	-	-	53.80	51.46	49.12	46.78
50106	50305	.5000"	1/2"	12.700	1/2"	2-1/2"	5/8"	.010"	-	-	62.57	59.85	57.13	54.41
50055	50306	.5000"	1/2"	12.700	1/2"	2-1/2"	5/8"	.020"	-	-	62.57	59.85	57.13	54.41
50107	50307	.5000"	1/2"	12.700	1/2"	2-1/2"	5/8"	.030"	-	-	62.57	59.85	57.13	54.41
50056	50308	.5000"	1/2"	12.700	1/2"	3"	1"	-	-	-	57.48	54.98	52.48	49.98
50108	50309	.5000"	1/2"	12.700	1/2"	3"	1"	.010"	-	-	69.84	66.80	63.77	60.73
50057	50310	.5000"	1/2"	12.700	1/2"	3"	1"	.020"	-	-	69.84	66.80	63.77	60.73
50109	50311	.5000"	1/2"	12.700	1/2"	3"	1"	.030"	-	-	69.84	66.80	63.77	60.73
50058	50312	.5000"	1/2"	12.700	1/2"	3"	1-1/4"	-	-	-	57.48	54.98	52.48	49.98
50111	50313	.5000"	1/2"	12.700	1/2"	3"	1-1/4"	.010"	-	-	69.84	66.80	63.77	60.73
50059	50314	.5000"	1/2"	12.700	1/2"	3"	1-1/4"	.015"	-	-	69.84	66.80	63.77	60.73
50061	50315	.5000"	1/2"	12.700	1/2"	3"	1-1/4"	.020"	-	-	69.84	66.80	63.77	60.73
50062	50316	.5000"	1/2"	12.700	1/2"	3"	1-1/4"	.030"	-	-	69.84	66.80	63.77	60.73
50063	50317	.5000"	1/2"	12.700	1/2"	3"	1-1/4"	.045"	-	-	69.84	66.80	63.77	60.73
50064	50318	.5000"	1/2"	12.700	1/2"	3"	1-1/4"	.060"	-	-	69.84	66.80	63.77	60.73
50065	50319	.5000"	1/2"	12.700	1/2"	3"	1-1/4"	.090"	-	-	69.84	66.80	63.77	60.73
50066	50320	.5000"	1/2"	12.700	1/2"	4"	1-1/4"	.030"	2-1/4"	.475"	94.22	90.12	86.03	81.93
50067	50321	.5000"	1/2"	12.700	1/2"	4"	2-1/8"	-	-	-	77.77	74.39	71.01	67.63
50068	50322	.5000"	1/2"	12.700	1/2"	4"	2-1/8"	.030"	-	-	82.54	78.95	75.36	71.77
50069	50323	.6250"	5/8"	15.875	5/8"	3-1/2"	1-1/4"	-	-	-	106.05	101.44	96.83	92.22
50071	50324	.6250"	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.030"	-	-	111.19	106.36	101.52	96.69
50072	50325	.6250"	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.060"	-	-	111.19	106.36	101.52	96.69
50073	50326	.6250"	5/8"	15.875	5/8"	4"	1-1/4"	.030"	2-1/4"	.590"	131.03	125.33	119.64	113.94
50074	50327	.6299"		16.000	16.0	88	32	-	-	-	110.64	105.83	101.02	96.21
50075	50328	.6299"		16.000	16.0	88	32	0.5	-	-	116.02	110.98	105.93	100.89
50076	50329	.6299"		16.000	16.0	100	32	-	50	14.4	127.86	122.30	116.74	111.18
50077	50330	.6299"		16.000	16.0	100	32	0.5	50	14.4	133.55	127.74	121.94	116.13
50078	50331	.7087"		18.000	18.0	100	32	0.75	-	-	166.57	159.32	152.08	144.84

V5 - 5 Flute (continued)

.7500" - 1.000"
(19.050mm - 25.400mm)

HIGH PERFORMANCE
END MILLS

EDP#		$d1$ † Diameter		$d2$ Shank Diameter	$l1$ Overall Length	$l2$ Flute Length	r Corner Radius	$l3$ Reach Length	$d3$ Neck Diameter	1-11	12-24	25-49	50-100	
(plain)	(weldon)	Decimal	Metric											
50079	50332	.7500"	3/4"	19.050	3/4"	3"	7/8"	-	-	-	147.99	141.56	135.12	128.69
50081	50333	.7500"	3/4"	19.050	3/4"	3"	7/8"	.030"	-	-	156.06	149.27	142.49	135.70
50082	50334	.7500"	3/4"	19.050	3/4"	4"	1-1/2"	-	-	-	151.39	144.80	138.22	131.64
50083	50335	.7500"	3/4"	19.050	3/4"	4"	1-1/2"	.030"	-	-	159.46	152.53	145.59	138.66
50084	50336	.7500"	3/4"	19.050	3/4"	4"	1-1/2"	.060"	-	-	159.46	152.53	145.59	138.66
50085	50337	.7500"	3/4"	19.050	3/4"	4"	1-1/2"	.120"	-	-	159.46	152.53	145.59	138.66
50086	50338	.7500"	3/4"	19.050	3/4"	5"	2-1/8"	-	-	-	203.19	194.36	185.52	176.69
50087	50339	.7500"	3/4"	19.050	3/4"	5"	2-1/8"	.030"	-	-	221.18	211.56	201.95	192.33
50088	50340	.7500"	3/4"	19.050	3/4"	5-1/2"	1-1/2"	.030"	3-1/4"	.705"	274.49	262.56	250.62	238.69
50089	50341	.7500"	3/4"	19.050	3/4"	6"	3-1/4"	-	-	-	237.79	227.45	217.11	206.77
50091	50342	.7500"	3/4"	19.050	3/4"	6"	3-1/4"	.030"	-	-	262.73	251.31	239.88	228.46
50092	50343	.7874"		20.000	20.0	100	38	-	-	-	204.53	195.64	186.74	177.85
50093	50344	.7874"		20.000	20.0	100	38	0.75	-	-	225.68	215.86	206.05	196.24
50094	50345	1.000"	1"	25.400	1"	4"	1-1/4"	-	-	-	226.16	216.33	206.49	196.66
50095	50346	1.000"	1"	25.400	1"	4"	1-1/4"	.030"	-	-	272.23	260.39	248.56	236.72
50096	50347	1.000"	1"	25.400	1"	4"	1-1/4"	.060"	-	-	272.23	260.39	248.56	236.72
-	50348	1.000"	1"	25.400	1"	4"	1-1/2"	-	-	-	226.16	216.33	206.49	196.66
-	50349	1.000"	1"	25.400	1"	4"	1-1/2"	.030"	-	-	272.23	260.39	248.56	236.72
-	50350	1.000"	1"	25.400	1"	4"	1-1/2"	.060"	-	-	272.23	260.39	248.56	236.72
50097	-	1.000"	1"	25.400	1"	4"	1-3/4"	-	-	-	226.16	216.33	206.49	196.66
50098	-	1.000"	1"	25.400	1"	4"	1-3/4"	.030"	-	-	272.23	260.39	248.56	236.72
50099	-	1.000"	1"	25.400	1"	4"	1-3/4"	.060"	-	-	272.23	260.39	248.56	236.72
50101	50351	1.000"	1"	25.400	1"	5-1/2"	1-3/4"	.030"	3-1/4"	.940"	444.16	424.85	405.54	386.23
50102	50352	1.000"	1"	25.400	1"	5-1/2"	1-3/4"	.060"	3-1/4"	.940"	444.16	424.85	405.54	386.23
50103	50353	1.000"	1"	25.400	1"	5-1/2"	1-3/4"	.120"	3-1/4"	.940"	444.16	424.85	405.54	386.23
50104	50354	1.000"	1"	25.400	1"	6"	3-1/4"	-	-	-	394.35	377.20	360.06	342.91
50105	50355	1.000"	1"	25.400	1"	6"	3-1/4"	.030"	-	-	436.84	417.85	398.85	379.86