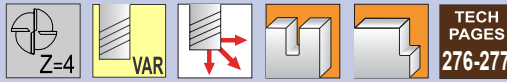


Series V4R

.2362" - .3937"
(6.000mm - 10.000mm)



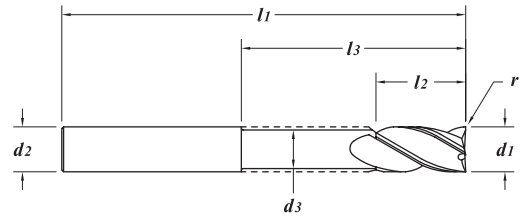
TOLERANCES	
$d1$	+0.000" -0.002" (+0.000mm -0.050mm)
$d2$	h6
r	+0.001" -0.001" (+0.025 -0.025mm)

Recommended for Titanium, Inconel, and Steels

Variable Helix End Mill - Corner Radius

AlCrN Coating

- Solid submicron grain carbide end mill - center cutting
- Helix geometry varies over length of flutes
- Variable flute design helps with chip evacuation in slots and pockets
- Variable rake aids in chip formation
- PCT (Polish Carbide Treatment) enhances tool life by 20%
- Minimizes burr on part
- Can be modified with a flat within 48 hours
- V4 Square End - page 149
- V4 Ball End - page 153



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

EDP#	(plain)	(weldon)	$d1$ † 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
			Decimal	Metric										
50199	-	-	.2362	6.000	6.0	65	12	0.30	-	-	25.74	24.62	23.50	22.38
50200	-	-	.2362	6.000	6.0	65	12	0.50	-	-	25.74	24.62	23.50	22.38
50201	-	-	.2362	6.000	6.0	65	12	0.75	-	-	25.74	24.62	23.50	22.38
50202	-	-	.2362	6.000	6.0	65	12	1.00	-	-	25.74	24.62	23.50	22.38
50203	-	-	.2362	6.000	6.0	65	12	1.50	-	-	25.74	24.62	23.50	22.38
50204	-	-	.2362	6.000	6.0	65	19	0.30	-	-	25.74	24.62	23.50	22.38
50205	-	-	.2362	6.000	6.0	65	19	0.50	-	-	25.74	24.62	23.50	22.38
50206	-	-	.2362	6.000	6.0	65	19	1.00	-	-	25.74	24.62	23.50	22.38
50490	-	-	.2500	6.350	1/4"	2"	3/8"	.015"	-	-	22.34	21.37	20.40	19.43
50207	-	-	.2500	6.350	1/4"	2-1/2"	3/4"	.010"	-	-	24.75	23.67	22.60	21.52
50208	-	-	.2500	6.350	1/4"	2-1/2"	3/4"	.015"	-	-	24.75	23.67	22.60	21.52
50209	-	-	.2500	6.350	1/4"	2-1/2"	3/4"	.030"	-	-	24.75	23.67	22.60	21.52
50210	-	-	.2500	6.350	1/4"	2-1/2"	3/4"	.060"	-	-	24.75	23.67	22.60	21.52
50211	-	-	.2500	6.350	1/4"	4"	3/8"	.015"	1-1/4"	.230"	47.96	45.87	43.79	41.70
50492	-	-	.3125	7.937	5/16"	2"	7/16"	.020"	-	-	30.51	29.18	27.86	26.53
50212	-	-	.3125	7.938	5/16"	2-1/2"	13/16"	.020"	-	-	33.52	32.07	30.61	29.15
50213	-	-	.3125	7.938	5/16"	2-1/2"	13/16"	.030"	-	-	33.52	32.07	30.61	29.15
50214	-	-	.3150	8.000	8.0	65	22	0.50	-	-	34.79	33.28	31.76	30.25
50356	-	-	.3150	8.000	8.0	65	22	0.75	-	-	34.79	33.28	31.76	30.25
50215	-	-	.3150	8.000	8.0	65	22	1.00	-	-	34.79	33.28	31.76	30.25
50357	-	-	.3150	8.000	8.0	65	22	1.50	-	-	34.79	33.28	31.76	30.25
50358	-	-	.3150	8.000	8.0	65	22	2.00	-	-	34.79	33.28	31.76	30.25
50494	-	-	.3750	9.525	3/8"	2"	1/2"	.020"	-	-	36.02	34.45	32.89	31.32
50216	-	-	.3750	9.525	3/8"	2-1/2"	1"	.010"	-	-	39.16	37.46	35.75	34.05
50217	-	-	.3750	9.525	3/8"	2-1/2"	1"	.020"	-	-	39.16	37.46	35.75	34.05
50218	-	-	.3750	9.525	3/8"	2-1/2"	1"	.030"	-	-	39.16	37.46	35.75	34.05
50219	-	-	.3750	9.525	3/8"	2-1/2"	1"	.060"	-	-	39.16	37.46	35.75	34.05
50220	-	-	.3750	9.525	3/8"	4"	1/2"	.020"	1-7/8"	.350"	69.21	66.20	63.19	60.18
50221	-	-	.3937	10.000	10.0	70	22	0.50	-	-	47.28	45.22	43.17	41.11
50359	-	-	.3937	10.000	10.0	70	22	0.75	-	-	47.28	45.22	43.17	41.11
50360	-	-	.3937	10.000	10.0	70	22	1.00	-	-	47.28	45.22	43.17	41.11
50361	-	-	.3937	10.000	10.0	70	22	1.50	-	-	47.28	45.22	43.17	41.11
50362	-	-	.3937	10.000	10.0	70	22	2.00	-	-	47.28	45.22	43.17	41.11

MATERIAL HARDNESS (Rc)

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EDP#		$d1^{\dagger}$		$d2$	$l1$	$l2$	r	$l3$	$d3$	1-11	12-24	25-49	50-100
(plain)	(weldon)	Decimal	Diameter	Shank Diameter	Overall Length	Flute Length	Corner Radius	Reach Length	Neck Diameter				
50363	50369	.4724	12.000	12.0	75	26	0.30	-	-	69.64	66.62	63.59	60.56
50364	50370	.4724	12.000	12.0	75	26	0.50	-	-	69.64	66.62	63.59	60.56
50365	50366	.4724	12.000	12.0	75	26	0.75	-	-	69.64	66.62	63.59	60.56
50367	50371	.4724	12.000	12.0	75	26	1.00	-	-	69.64	66.62	63.59	60.56
50372	50373	.4724	12.000	12.0	75	26	1.50	-	-	69.64	66.62	63.59	60.56
50374	50375	.4724	12.000	12.0	75	26	2.00	-	-	69.64	66.62	63.59	60.56
50222	50270	.4724	12.000	12.0	75	32	0.50	-	-	69.64	66.62	63.59	60.56
50223	50271	.4724	12.000	12.0	75	32	1.00	-	-	69.64	66.62	63.59	60.56
50566	-	.4724	12.000	12.0	100	42	0.30	-	-	81.05	77.53	74.00	70.48
50568	-	.4724	12.000	12.0	100	42	0.50	-	-	81.05	77.53	74.00	70.48
50570	-	.4724	12.000	12.0	100	42	1.00	-	-	81.05	77.53	74.00	70.48
50572	-	.4724	12.000	12.0	100	42	2.00	-	-	81.05	77.53	74.00	70.48
50574	-	.4724	12.000	12.0	100	42	3.00	-	-	81.05	77.53	74.00	70.48
50496	50497	.5000	1/2"	1/2"	2-1/2"	5/8"	.020"	-	-	59.85	57.25	54.65	52.04
50379	50380	.5000	1/2"	1/2"	3"	1"	.010"	-	-	66.80	63.90	60.99	58.09
50381	50382	.5000	1/2"	1/2"	3"	1"	.020"	-	-	66.80	63.90	60.99	58.09
50383	50384	.5000	1/2"	1/2"	3"	1"	.030"	-	-	66.80	63.90	60.99	58.09
50385	50386	.5000	1/2"	1/2"	3"	1"	.060"	-	-	66.80	63.90	60.99	58.09
50224	50272	.5000	1/2"	1/2"	3"	1-1/4"	.010"	-	-	66.80	63.90	60.99	58.09
50225	50273	.5000	1/2"	1/2"	3"	1-1/4"	.020"	-	-	66.80	63.90	60.99	58.09
50226	50274	.5000	1/2"	1/2"	3"	1-1/4"	.030"	-	-	66.80	63.90	60.99	58.09
50227	50275	.5000	1/2"	1/2"	3"	1-1/4"	.060"	-	-	66.80	63.90	60.99	58.09
50228	50276	.5000	1/2"	1/2"	4"	5/8"	.020"	2-1/4"	.470"	90.13	86.21	82.29	78.37
50580	50581	.5000	1/2"	1/2"	4"	1-5/8"	.010"	-	-	78.96	75.53	72.09	68.66
50582	50583	.5000	1/2"	1/2"	4"	1-5/8"	.020"	-	-	78.96	75.53	72.09	68.66
50584	50585	.5000	1/2"	1/2"	4"	1-5/8"	.030"	-	-	78.96	75.53	72.09	68.66
50586	50587	.5000	1/2"	1/2"	4"	1-5/8"	.040"	-	-	78.96	75.53	72.09	68.66
50588	50589	.5000	1/2"	1/2"	4"	1-5/8"	.060"	-	-	78.96	75.53	72.09	68.66
50590	50591	.5000	1/2"	1/2"	4"	1-5/8"	.120"	-	-	78.96	75.53	72.09	68.66
50594	-	.5000	1/2"	1/2"	6"	5/8"	.020"	4-1/8"	.470"	122.84	117.50	112.16	106.82
50596	-	.5000	1/2"	1/2"	6"	5/8"	.030"	4-1/8"	.470"	122.84	117.50	112.16	106.82
50498	50499	.6250	5/8"	5/8"	3"	3/4"	.020"	-	-	103.48	98.98	94.48	89.98
50500	50501	.6250	5/8"	5/8"	3"	3/4"	.030"	-	-	103.48	98.98	94.48	89.98
50502	50503	.6250	5/8"	5/8"	3"	3/4"	.060"	-	-	103.48	98.98	94.48	89.98
50229	50277	.6250	5/8"	5/8"	3-1/2"	1-1/4"	.020"	-	-	106.35	101.73	97.10	92.48
50534	50535	.6250	5/8"	5/8"	3-1/2"	1-1/4"	.030"	-	-	106.35	101.73	97.10	92.48
50536	50537	.6250	5/8"	5/8"	3-1/2"	1-1/4"	.040"	-	-	106.35	101.73	97.10	92.48
50538	50539	.6250	5/8"	5/8"	3-1/2"	1-1/4"	.060"	-	-	106.35	101.73	97.10	92.48
50230	50278	.6250	5/8"	5/8"	3-1/2"	1-1/4"	.120"	-	-	106.35	101.73	97.10	92.48
50504	-	.6299	16.000	16.0	75	19	0.50	-	-	108.02	103.32	98.63	93.93
50506	-	.6299	16.000	16.0	75	19	1.00	-	-	108.02	103.32	98.63	93.93
50508	-	.6299	16.000	16.0	75	19	3.00	-	-	108.02	103.32	98.63	93.93
50231	50279	.6299	16.000	16.0	88	32	0.50	-	-	110.99	106.16	101.34	96.51
50409	50410	.6299	16.000	16.0	88	32	0.75	-	-	110.99	106.16	101.34	96.51
50411	50412	.6299	16.000	16.0	88	32	1.00	-	-	110.99	106.16	101.34	96.51
50413	50414	.6299	16.000	16.0	88	32	1.50	-	-	110.99	106.16	101.34	96.51
50415	50416	.6299	16.000	16.0	88	32	2.00	-	-	110.99	106.16	101.34	96.51
50417	50418	.6299	16.000	16.0	88	32	3.00	-	-	110.99	106.16	101.34	96.51

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MATERIAL HARDNESS (Rc)

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continued →

Series V4R (continued)

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

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											
50510	50511	.7500	3/4"	19.050	3/4"	4"	1"	.020"	-	-	152.51	145.88	139.25	132.62
50512	50513	.7500	3/4"	19.050	3/4"	4"	1"	.030"	-	-	152.51	145.88	139.25	132.62
50514	50515	.7500	3/4"	19.050	3/4"	4"	1"	.060"	-	-	152.51	145.88	139.25	132.62
50516	50517	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.020"	-	-	152.51	145.88	139.25	132.62
50232	50280	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.030"	-	-	152.51	145.88	139.25	132.62
50518	50519	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.060"	-	-	152.51	145.88	139.25	132.62
50520	50521	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.120"	-	-	152.51	145.88	139.25	132.62
50522	50523	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.020"	-	-	152.51	145.88	139.25	132.62
50524	50525	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.030"	-	-	152.51	145.88	139.25	132.62
50526	50527	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.060"	-	-	152.51	145.88	139.25	132.62
50528	-	.7874		20.000	20.0	100	38	1.00	-	-	215.86	206.47	197.09	187.70
50530	-	.7874		20.000	20.0	100	38	2.00	-	-	215.86	206.47	197.09	187.70
50532	-	.7874		20.000	20.0	100	38	3.00	-	-	215.86	206.47	197.09	187.70
50233	50281	1.000	1"	25.400	1"	4"	1-1/2"	.030"	-	-	260.38	249.06	237.74	226.42
50234	50282	1.000	1"	25.400	1"	5"	2-1/8"	.030"	-	-	320.38	306.45	292.52	278.59



V4-S series in 1018 material

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MATERIAL HARDNESS (Rc)