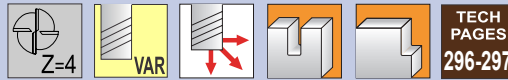


TOLERANCES

<i>d1</i>	+0.000" - .002" (+.000mm - .050mm)
<i>d2</i>	h6
<i>r</i>	+0.001" - .001" (+.025 - .025mm)
<i>ball radius</i>	+0.000" - .001" (+.000 - .025mm)

NEW ITEMS

Series V4S, V4R, V4B



.1562" - .2188"
(3.967mm - 5.558mm)

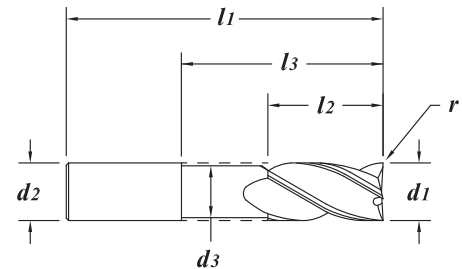
Recommended for titanium, inconel, and stainless steel

Variable Helix End Mill

AlCrN Coating

- Solid submicron grain carbide end mill - center cutting
- Engineered for High Efficiency Milling
- 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
- Minimizes burr on part
- 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



HIGH PERFORMANCE
END MILLS

70

35

MATERIAL HARDNESS (Rc)

0

EDP#	(plain) (weldon)	<i>d1</i> †		<i>d2</i>	<i>l1</i>	<i>l2</i>	<i>r</i>	<i>l3</i>	<i>d3</i>	1-11	12-24	25-49	50-100	
		Decimal	Diameter											Metric
50171	-	.1562	5/32"	3.967	1/4"	2"	1/2"	-	-	-	23.64	22.62	21.59	20.56
50172	-	.1562	5/32"	3.967	1/4"	2"	1/2"	.010"	-	-	25.70	24.59	23.47	22.35
50173	-	.1562	5/32"	3.967	1/4"	2"	1/2"	.015"	-	-	25.70	24.59	23.47	22.35
50174	-	.1562	5/32"	3.967	1/4"	2"	1/2"	.020"	-	-	25.70	24.59	23.47	22.35
50175	-	.1562	5/32"	3.967	1/4"	2"	1/2"	.030"	-	-	25.70	24.59	23.47	22.35
50176	-	.1562	5/32"	3.967	1/4"	2"	1/2"	BALL	-	-	25.70	24.59	23.47	22.35
50177	-	.1575		4.000	6.0	50	12	-	-	-	26.32	25.18	24.03	22.89
50178	-	.1575		4.000	6.0	50	12	0.20	-	-	26.74	25.58	24.41	23.25
50179	-	.1575		4.000	6.0	50	12	0.30	-	-	26.74	25.58	24.41	23.25
50180	-	.1575		4.000	6.0	50	12	0.50	-	-	26.74	25.58	24.41	23.25
50181	-	.1575		4.000	6.0	50	12	BALL	-	-	26.74	25.58	24.41	23.25
50182	-	.1875	3/16"	4.763	1/4"	2"	1/2"	-	-	-	23.18	22.18	21.17	20.16
50183	-	.1875	3/16"	4.763	1/4"	2"	1/2"	.010"	-	-	25.20	24.10	23.01	21.91
50184	-	.1875	3/16"	4.763	1/4"	2"	1/2"	.015"	-	-	25.20	24.10	23.01	21.91
50185	-	.1875	3/16"	4.763	1/4"	2"	1/2"	.020"	-	-	25.20	24.10	23.01	21.91
50186	-	.1875	3/16"	4.763	1/4"	2"	1/2"	.030"	-	-	25.20	24.10	23.01	21.91
50187	-	.1875	3/16"	4.763	1/4"	2"	1/2"	BALL	-	-	25.20	24.10	23.01	21.91
50188	-	.1969		5.000	6.0	65	20	-	-	-	28.16	26.94	25.71	24.49
50189	-	.1969		5.000	6.0	65	20	0.20	-	-	29.03	27.76	26.50	25.24
50190	-	.1969		5.000	6.0	65	20	0.30	-	-	29.03	27.76	26.50	25.24
50191	-	.1969		5.000	6.0	65	20	0.50	-	-	29.03	27.76	26.50	25.24
50192	-	.1969		5.000	6.0	65	20	BALL	-	-	29.03	27.76	26.50	25.24
50193	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	-	-	-	25.61	24.50	23.38	22.27
NEW 50194	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	.010"	-	-	27.95	26.73	25.52	24.30
NEW 50195	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	.015"	-	-	27.95	26.73	25.52	24.30
NEW 50196	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	.020"	-	-	27.95	26.73	25.52	24.30
50197	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	.030"	-	-	27.95	26.73	25.52	24.30
50198	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	BALL	-	-	27.95	26.73	25.52	24.30

continued →

Series V4S, V4R, V4B (continued)

.2362" - .2500"
(6.000mm - 6.350mm)

70
35
0
MATERIAL HARDNESS (Rc)

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										
50236	-	.2362	6.000	6.0	65	12	-	-	-	24.73	23.65	22.58	21.50
50199	-	.2362	6.000	6.0	65	12	0.30	-	-	28.11	26.88	25.66	24.44
50200	-	.2362	6.000	6.0	65	12	0.50	-	-	28.11	26.88	25.66	24.44
50201	-	.2362	6.000	6.0	65	12	0.75	-	-	28.11	26.88	25.66	24.44
50202	-	.2362	6.000	6.0	65	12	1.00	-	-	28.11	26.88	25.66	24.44
50203	-	.2362	6.000	6.0	65	12	1.50	-	-	28.11	26.88	25.66	24.44
50252	-	.2362	6.000	6.0	65	12	BALL	-	-	28.11	26.88	25.66	24.44
50237	-	.2362	6.000	6.0	65	19	-	-	-	24.73	23.65	22.58	21.50
50204	-	.2362	6.000	6.0	65	19	0.30	-	-	28.11	26.88	25.66	24.44
50205	-	.2362	6.000	6.0	65	19	0.50	-	-	28.11	26.88	25.66	24.44
50206	-	.2362	6.000	6.0	65	19	1.00	-	-	28.11	26.88	25.66	24.44
50253	-	.2362	6.000	6.0	65	19	BALL	-	-	28.11	26.88	25.66	24.44
50540	-	.2500	6.350	1/4"	2"	3/8"	-	-	-	21.15	20.23	19.31	18.39
50489	-	.2500	6.350	1/4"	2"	3/8"	.010"	-	-	24.40	23.34	22.28	21.22
50490	-	.2500	6.350	1/4"	2"	3/8"	.015"	-	-	24.40	23.34	22.28	21.22
50491	-	.2500	6.350	1/4"	2"	3/8"	.020"	-	-	24.40	23.34	22.28	21.22
50708	-	.2500	6.350	1/4"	2"	3/8"	.030"	-	-	24.40	23.34	22.28	21.22
50709	-	.2500	6.350	1/4"	2"	3/8"	.040"	-	-	24.40	23.34	22.28	21.22
50710	-	.2500	6.350	1/4"	2"	3/8"	.060"	-	-	24.40	23.34	22.28	21.22
50711	-	.2500	6.350	1/4"	2"	3/8"	.090"	-	-	24.40	23.34	22.28	21.22
50560	-	.2500	6.350	1/4"	2"	3/8"	BALL	-	-	24.40	23.34	22.28	21.22
50645	-	.2500	6.350	1/4"	2"	1/2"	-	-	-	21.15	20.23	19.31	18.39
50614	-	.2500	6.350	1/4"	2"	1/2"	.010"	-	-	24.40	23.34	22.28	21.22
50616	-	.2500	6.350	1/4"	2"	1/2"	.015"	-	-	24.40	23.34	22.28	21.22
50618	-	.2500	6.350	1/4"	2"	1/2"	.020"	-	-	24.40	23.34	22.28	21.22
50712	-	.2500	6.350	1/4"	2"	1/2"	.030"	-	-	24.40	23.34	22.28	21.22
50713	-	.2500	6.350	1/4"	2"	1/2"	.040"	-	-	24.40	23.34	22.28	21.22
50714	-	.2500	6.350	1/4"	2"	1/2"	.060"	-	-	24.40	23.34	22.28	21.22
50715	-	.2500	6.350	1/4"	2"	1/2"	.090"	-	-	24.40	23.34	22.28	21.22
50238	-	.2500	6.350	1/4"	2-1/2"	3/4"	-	-	-	23.86	22.83	21.79	20.75
50207	-	.2500	6.350	1/4"	2-1/2"	3/4"	.010"	-	-	27.03	25.85	24.68	23.50
50208	-	.2500	6.350	1/4"	2-1/2"	3/4"	.015"	-	-	27.03	25.85	24.68	23.50
50620	-	.2500	6.350	1/4"	2-1/2"	3/4"	.020"	-	-	27.03	25.85	24.68	23.50
50209	-	.2500	6.350	1/4"	2-1/2"	3/4"	.030"	-	-	27.03	25.85	24.68	23.50
50716	-	.2500	6.350	1/4"	2-1/2"	3/4"	.040"	-	-	27.03	25.85	24.68	23.50
50210	-	.2500	6.350	1/4"	2-1/2"	3/4"	.060"	-	-	27.03	25.85	24.68	23.50
50717	-	.2500	6.350	1/4"	2-1/2"	3/4"	.090"	-	-	27.03	25.85	24.68	23.50
50254	-	.2500	6.350	1/4"	2-1/2"	3/4"	BALL	-	-	27.03	25.85	24.68	23.50
50653	-	.2500	6.350	1/4"	3"	1-1/8"	-	-	-	36.31	34.73	33.15	31.57
50493	-	.2500	6.350	1/4"	3"	1-1/8"	.030"	-	-	40.03	38.29	36.55	34.81
50677	-	.2500	6.350	1/4"	3"	1-1/8"	BALL	-	-	40.03	38.29	36.55	34.81

EDP#	<i>d1</i> †	Shank Diameter	<i>d2</i>	<i>l1</i>	<i>l2</i>	<i>r</i>	<i>l3</i>	<i>d3</i>	1-11	12-24	25-49	50-100		
													(plain)	(weldon)
50654	-	.2500	1/4"	6.350	1/4"	4"	1-1/2"	-	-	-	39.07	37.37	35.67	33.97
50681	-	.2500	1/4"	6.350	1/4"	4"	1-1/2"	BALL	-	-	42.86	41.00	39.13	37.27
50655	-	.2500	1/4"	6.350	1/4"	4"	1-3/4"	-	-	-	39.07	37.37	35.67	33.97
50718	-	.2500	1/4"	6.350	1/4"	4"	1-3/4"	.020"	-	-	42.86	41.00	39.13	37.27
NEW 50682	-	.2500	1/4"	6.350	1/4"	4"	1-3/4"	BALL	-	-	42.86	41.00	39.13	37.27
50656	-	.2500	1/4"	6.350	1/4"	4"	2"	-	-	-	39.07	37.37	35.67	33.97
50683	-	.2500	1/4"	6.350	1/4"	4"	2"	BALL	-	-	42.86	41.00	39.13	37.27
50651	-	.2500	1/4"	6.350	1/4"	3"	3/8"	-	1-1/8"	.237"	45.77	43.78	41.79	39.80
50678	-	.2500	1/4"	6.350	1/4"	3"	3/8"	BALL	1-1/8"	.237"	49.54	47.39	45.23	43.08
50600	-	.2500	1/4"	6.350	1/4"	4"	3/8"	-	1-1/8"	.237"	48.73	46.61	44.49	42.37
50211	-	.2500	1/4"	6.350	1/4"	4"	3/8"	.015"	1-1/4"	.230"	52.37	50.09	47.82	45.54
50474	-	.2500	1/4"	6.350	1/4"	4"	3/8"	BALL	1-1/8"	.237"	52.37	50.09	47.82	45.54
50679	-	.2500	1/4"	6.350	1/4"	4"	3/8"	BALL	1-1/2"	.237"	52.37	50.09	47.82	45.54
50652	-	.2500	1/4"	6.350	1/4"	4"	3/8"	-	2"	.237"	48.73	46.61	44.49	42.37
50680	-	.2500	1/4"	6.350	1/4"	4"	3/8"	BALL	2"	.237"	52.37	50.09	47.82	45.54
50719	-	.2500	1/4"	6.350	1/4"	6"	3/8"	.010"	4"	.230"	65.94	63.07	60.21	57.34
50684	-	.2500	1/4"	6.350	1/4"	6"	3/8"	BALL	4"	.230"	65.94	63.07	60.21	57.34
50720	-	.3125	5/16"	7.937	5/16"	2"	3/8"	.030"	-	-	33.32	31.87	30.42	28.97
50541	-	.3125	5/16"	7.937	5/16"	2"	7/16"	-	-	-	29.21	27.94	26.67	25.40
50622	-	.3125	5/16"	7.937	5/16"	2"	7/16"	.010"	-	-	33.32	31.87	30.42	28.97
50624	-	.3125	5/16"	7.937	5/16"	2"	7/16"	.015"	-	-	33.32	31.87	30.42	28.97
50492	-	.3125	5/16"	7.937	5/16"	2"	7/16"	.020"	-	-	33.32	31.87	30.42	28.97
50721	-	.3125	5/16"	7.937	5/16"	2"	7/16"	.125"	-	-	33.32	31.87	30.42	28.97
50561	-	.3125	5/16"	7.937	5/16"	2"	7/16"	BALL	-	-	33.32	31.87	30.42	28.97
50239	-	.3125	5/16"	7.937	5/16"	2-1/2"	13/16"	-	-	-	34.02	32.54	31.06	29.58
50626	-	.3125	5/16"	7.937	5/16"	2-1/2"	13/16"	.010"	-	-	36.60	35.01	33.42	31.83
50628	-	.3125	5/16"	7.937	5/16"	2-1/2"	13/16"	.015"	-	-	36.60	35.01	33.42	31.83
50212	-	.3125	5/16"	7.937	5/16"	2-1/2"	13/16"	.020"	-	-	36.60	35.01	33.42	31.83
50213	-	.3125	5/16"	7.937	5/16"	2-1/2"	13/16"	.030"	-	-	36.60	35.01	33.42	31.83
50722	-	.3125	5/16"	7.937	5/16"	2-1/2"	13/16"	.060"	-	-	36.60	35.01	33.42	31.83
50723	-	.3125	5/16"	7.937	5/16"	2-1/2"	13/16"	.125"	-	-	36.60	35.01	33.42	31.83
50255	-	.3125	5/16"	7.937	5/16"	2-1/2"	13/16"	BALL	-	-	36.60	35.01	33.42	31.83
50657	-	.3125	5/16"	7.937	5/16"	3"	1-1/4"	-	-	-	46.43	44.41	42.39	40.37
50724	-	.3125	5/16"	7.937	5/16"	3"	1-1/4"	.015"	-	-	51.06	48.84	46.62	44.40
50725	-	.3125	5/16"	7.937	5/16"	3"	1-1/4"	.030"	-	-	51.06	48.84	46.62	44.40
50726	-	.3125	5/16"	7.937	5/16"	3"	1-1/4"	.060"	-	-	51.06	48.84	46.62	44.40
50685	-	.3125	5/16"	7.937	5/16"	3"	1-1/4"	BALL	-	-	51.06	48.84	46.62	44.40
50658	-	.3125	5/16"	7.937	5/16"	3"	7/16"	-	1-1/2"	.295"	57.55	55.04	52.54	50.04
50686	-	.3125	5/16"	7.937	5/16"	3"	7/16"	BALL	1-1/2"	.295"	62.18	59.48	56.77	54.07
50602	-	.3150		8.000	8.0	50	12	-	-	-	30.27	28.95	27.64	26.32
50630	-	.3150		8.000	8.0	50	12	0.50	-	-	34.56	33.06	31.55	30.05
50240	-	.3150		8.000	8.0	65	22	-	-	-	35.25	33.72	32.18	30.65
50214	-	.3150		8.000	8.0	65	22	0.50	-	-	37.98	36.33	34.68	33.03
50356	-	.3150		8.000	8.0	65	22	0.75	-	-	37.98	36.33	34.68	33.03
50215	-	.3150		8.000	8.0	65	22	1.00	-	-	37.98	36.33	34.68	33.03
50727	-	.3150		8.000	8.0	65	22	1.20	-	-	37.98	36.33	34.68	33.03
50357	-	.3150		8.000	8.0	65	22	1.50	-	-	37.98	36.33	34.68	33.03
50358	-	.3150		8.000	8.0	65	22	2.00	-	-	37.98	36.33	34.68	33.03
50728	-	.3150		8.000	8.0	65	22	3.00	-	-	37.98	36.33	34.68	33.03
50256	-	.3150		8.000	8.0	65	22	BALL	-	-	37.98	36.33	34.68	33.03

70

35

MATERIAL HARDNESS (Rc)

0

continued →

Series V4S, V4R, V4B (continued)

.3150" - .3937"
(8.000mm - 10.000mm)

70
35
0
MATERIAL HARDNESS (Rc)

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											
50659	-	.3150	8.000	8.0	75	32	-	-	-	48.36	46.26	44.15	42.05	
50687	-	.3150	8.000	8.0	75	32	BALL	-	-	53.23	50.92	48.60	46.29	
50660	-	.3150	8.000	8.0	100	12	-	50	7.50	66.56	63.67	60.77	57.88	
50688	-	.3150	8.000	8.0	100	12	BALL	50	7.50	71.93	68.81	65.68	62.55	
50542	-	.3750	3/8"	9.525	3/8"	2"	1/2"	-	-	34.45	32.96	31.46	29.96	
50632	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.010"	-	39.34	37.63	35.92	34.21	
50729	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.015"	-	39.34	37.63	35.92	34.21	
50494	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.020"	-	39.34	37.63	35.92	34.21	
50634	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.030"	-	39.34	37.63	35.92	34.21	
50730	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.060"	-	39.34	37.63	35.92	34.21	
50732	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.090"	-	39.34	37.63	35.92	34.21	
50733	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.120"	-	39.34	37.63	35.92	34.21	
50734	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.125"	-	39.34	37.63	35.92	34.21	
50562	-	.3750	3/8"	9.525	3/8"	2"	1/2"	BALL	-	39.34	37.63	35.92	34.21	
50241	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	-	-	40.15	38.40	36.66	34.91	
50216	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.010"	-	42.76	40.90	39.04	37.18	
50735	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.015"	-	42.76	40.90	39.04	37.18	
50217	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.020"	-	42.76	40.90	39.04	37.18	
50218	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.030"	-	42.76	40.90	39.04	37.18	
50736	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.040"	-	42.76	40.90	39.04	37.18	
50219	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.060"	-	42.76	40.90	39.04	37.18	
50636	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.090"	-	42.76	40.90	39.04	37.18	
50737	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.120"	-	42.76	40.90	39.04	37.18	
50738	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.125"	-	42.76	40.90	39.04	37.18	
50257	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	BALL	-	42.76	40.90	39.04	37.18	
50661	-	.3750	3/8"	9.525	3/8"	3"	1-1/4"	-	-	51.21	48.98	46.76	44.53	
50739	-	.3750	3/8"	9.525	3/8"	3"	1-1/4"	.015"	-	56.28	53.83	51.39	48.94	
50637	-	.3750	3/8"	9.525	3/8"	3"	1-1/4"	.030"	-	56.28	53.83	51.39	48.94	
50740	-	.3750	3/8"	9.525	3/8"	3"	1-1/4"	.060"	-	56.28	53.83	51.39	48.94	
50689	-	.3750	3/8"	9.525	3/8"	3"	1-1/4"	BALL	-	56.28	53.83	51.39	48.94	
50662	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"	-	-	57.87	55.35	52.84	50.32	
50741	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"	.015"	-	63.33	60.58	57.82	55.07	
50742	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"	.030"	-	63.33	60.58	57.82	55.07	
50743	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"	.060"	-	63.33	60.58	57.82	55.07	
50744	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"	.120"	-	63.33	60.58	57.82	55.07	
50690	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"	BALL	-	63.33	60.58	57.82	55.07	
50745	-	.3750	3/8"	9.525	3/8"	6"	2-1/2"	.060	-	87.69	83.88	80.06	76.25	
50604	-	.3750	3/8"	9.525	3/8"	4"	1/2"	-	1-1/8"	.355"	70.27	67.21	64.16	61.10
50220	-	.3750	3/8"	9.525	3/8"	4"	1/2"	.020"	1-7/8"	.350"	75.58	72.29	69.01	65.72
50476	-	.3750	3/8"	9.525	3/8"	4"	1/2"	BALL	1-1/8"	.355"	75.58	72.29	69.01	65.72
50606	-	.3937	10.000	10.0	50	14	-	-	-	44.25	42.33	40.40	38.48	
50638	-	.3937	10.000	10.0	50	14	0.50	-	-	47.48	45.42	43.35	41.29	
50242	-	.3937	10.000	10.0	70	22	-	-	-	48.13	46.04	43.94	41.85	
50746	-	.3937	10.000	10.0	70	22	0.25	-	-	51.64	49.39	47.15	44.90	
50221	-	.3937	10.000	10.0	70	22	0.50	-	-	51.64	49.39	47.15	44.90	
50359	-	.3937	10.000	10.0	70	22	0.75	-	-	51.64	49.39	47.15	44.90	
50360	-	.3937	10.000	10.0	70	22	1.00	-	-	51.64	49.39	47.15	44.90	
50361	-	.3937	10.000	10.0	70	22	1.50	-	-	51.64	49.39	47.15	44.90	
50362	-	.3937	10.000	10.0	70	22	2.00	-	-	51.64	49.39	47.15	44.90	
50747	-	.3937	10.000	10.0	70	22	3.00	-	-	51.64	49.39	47.15	44.90	
50258	-	.3937	10.000	10.0	70	22	BALL	-	-	51.64	49.39	47.15	44.90	
50608	-	.3937	10.000	10.0	70	26	-	-	-	48.13	46.04	43.94	41.85	
NEW 50748	-	.3937	10.000	10.0	70	26	1.50	-	-	51.64	49.39	47.15	44.90	
50663	-	.3937	10.000	10.0	70	30	-	-	-	48.13	46.04	43.94	41.85	
50691	-	.3937	10.000	10.0	70	30	BALL	-	-	51.64	49.39	47.15	44.90	

Series V4S, V4R, V4B (continued)

.3937" - .5000"
(10.000mm - 12.700mm)

HIGH PERFORMANCE
END MILLS

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				
50749	-	.3937	10.000	10.0	70	22	0.50	30	9.40	62.76	60.03	57.30	54.57
50750	-	.3937	10.000	10.0	100	12	0.30	50	9.40	91.31	87.34	83.37	79.40
50692	-	.3937	10.000	10.0	100	14	BALL	50	9.40	91.31	87.34	83.37	79.40
50450	50449	.4724	12.000	12.0	75	26	-	-	-	62.54	59.82	57.10	54.38
50363	50369	.4724	12.000	12.0	75	26	0.30	-	-	76.05	72.74	69.44	66.13
50364	50370	.4724	12.000	12.0	75	26	0.50	-	-	76.05	72.74	69.44	66.13
50365	50366	.4724	12.000	12.0	75	26	0.75	-	-	76.05	72.74	69.44	66.13
50367	50371	.4724	12.000	12.0	75	26	1.00	-	-	76.05	72.74	69.44	66.13
50372	50373	.4724	12.000	12.0	75	26	1.50	-	-	76.05	72.74	69.44	66.13
50374	50375	.4724	12.000	12.0	75	26	2.00	-	-	76.05	72.74	69.44	66.13
50470	-	.4724	12.000	12.0	75	26	BALL	-	-	76.05	72.74	69.44	66.13
50243	50283	.4724	12.000	12.0	75	32	-	-	-	62.54	59.82	57.10	54.38
50222	50270	.4724	12.000	12.0	75	32	0.50	-	-	76.05	72.74	69.44	66.13
50223	50271	.4724	12.000	12.0	75	32	1.00	-	-	76.05	72.74	69.44	66.13
50259	50291	.4724	12.000	12.0	75	32	BALL	-	-	76.05	72.74	69.44	66.13
50664	-	.4724	12.000	12.0	88	36	-	-	-	80.49	76.99	73.49	69.99
50751	-	.4724	12.000	12.0	88	36	0.30	-	-	85.46	81.74	78.03	74.31
50752	-	.4724	12.000	12.0	88	36	0.50	-	-	85.46	81.74	78.03	74.31
50753	-	.4724	12.000	12.0	88	36	1.00	-	-	85.46	81.74	78.03	74.31
50754	-	.4724	12.000	12.0	88	36	1.50	-	-	85.46	81.74	78.03	74.31
50755	-	.4724	12.000	12.0	88	36	3.00	-	-	85.46	81.74	78.03	74.31
50693	-	.4724	12.000	12.0	88	36	BALL	-	-	85.46	81.74	78.03	74.31
50564	-	.4724	12.000	12.0	100	42	-	-	-	83.58	79.95	76.31	72.68
50566	-	.4724	12.000	12.0	100	42	0.30	-	-	88.50	84.66	80.81	76.96
50568	-	.4724	12.000	12.0	100	42	0.50	-	-	88.50	84.66	80.81	76.96
50570	-	.4724	12.000	12.0	100	42	1.00	-	-	88.50	84.66	80.81	76.96
50572	-	.4724	12.000	12.0	100	42	2.00	-	-	88.50	84.66	80.81	76.96
50574	-	.4724	12.000	12.0	100	42	3.00	-	-	88.50	84.66	80.81	76.96
50576	-	.4724	12.000	12.0	100	42	BALL	-	-	88.50	84.66	80.81	76.96
50665	-	.4724	12.000	12.0	100	48	-	-	-	83.58	79.95	76.31	72.68
50756	-	.4724	12.000	12.0	100	48	0.30	-	-	88.50	84.66	80.81	76.96
50757	-	.4724	12.000	12.0	100	48	0.50	-	-	88.50	84.66	80.81	76.96
NEW 50758	-	.4724	12.000	12.0	100	48	1.00	-	-	88.50	84.66	80.81	76.96
NEW 50759	-	.4724	12.000	12.0	100	48	1.50	-	-	88.50	84.66	80.81	76.96
NEW 50760	-	.4724	12.000	12.0	100	48	3.00	-	-	88.50	84.66	80.81	76.96
50761	-	.4724	12.000	12.0	100	48	4.00	-	-	88.50	84.66	80.81	76.96
50694	-	.4724	12.000	12.0	100	48	BALL	-	-	88.50	84.66	80.81	76.96
50695	-	.4724	12.000	12.0	100	14	BALL	50	11.40	100.73	96.35	91.97	87.59
50543	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	-	-	56.33	53.88	51.43	48.98
50640	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.010"	-	65.35	62.51	59.67	56.83
50762	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.015"	-	65.35	62.51	59.67	56.83
50496	50497	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.020"	-	65.35	62.51	59.67	56.83
50642	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.030"	-	65.35	62.51	59.67	56.83
50763	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.060"	-	65.35	62.51	59.67	56.83
50764	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.090"	-	65.35	62.51	59.67	56.83
50765	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.120"	-	65.35	62.51	59.67	56.83
50644	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.125"	-	65.35	62.51	59.67	56.83
50766	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.156"	-	65.35	62.51	59.67	56.83
50767	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.190"	-	65.35	62.51	59.67	56.83
50563	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	BALL	-	65.35	62.51	59.67	56.83

70

35

MATERIAL HARDNESS (Rc)

0

continued →

Series V4S, V4R, V4B (continued)

.5000"
(12.700mm)

MATERIAL HARDNESS (Rc)

70

35

0

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											
50452	50453	.5000	1/2"	12.700	1/2"	3"	1"	-	-	-	60.04	57.43	54.82	52.21
50379	50380	.5000	1/2"	12.700	1/2"	3"	1"	.010"	-	-	72.94	69.77	66.60	63.43
50768	-	.5000	1/2"	12.700	1/2"	3"	1"	.015"	-	-	72.94	69.77	66.60	63.43
50381	50382	.5000	1/2"	12.700	1/2"	3"	1"	.020"	-	-	72.94	69.77	66.60	63.43
50383	50384	.5000	1/2"	12.700	1/2"	3"	1"	.030"	-	-	72.94	69.77	66.60	63.43
50385	50386	.5000	1/2"	12.700	1/2"	3"	1"	.060"	-	-	72.94	69.77	66.60	63.43
50769	-	.5000	1/2"	12.700	1/2"	3"	1"	.090"	-	-	72.94	69.77	66.60	63.43
50770	-	.5000	1/2"	12.700	1/2"	3"	1"	.120"	-	-	72.94	69.77	66.60	63.43
50771	-	.5000	1/2"	12.700	1/2"	3"	1"	.125"	-	-	72.94	69.77	66.60	63.43
50772	-	.5000	1/2"	12.700	1/2"	3"	1"	.190"	-	-	72.94	69.77	66.60	63.43
50472	50473	.5000	1/2"	12.700	1/2"	3"	1"	BALL	-	-	72.94	69.77	66.60	63.43
50244	50284	.5000	1/2"	12.700	1/2"	3"	1-1/4"	-	-	-	60.04	57.43	54.82	52.21
50224	50272	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.010"	-	-	72.94	69.77	66.60	63.43
50773	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.015"	-	-	72.94	69.77	66.60	63.43
50225	50273	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.020"	-	-	72.94	69.77	66.60	63.43
50226	50274	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.030"	-	-	72.94	69.77	66.60	63.43
50227	50275	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.060"	-	-	72.94	69.77	66.60	63.43
50774	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.090"	-	-	72.94	69.77	66.60	63.43
50775	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.120"	-	-	72.94	69.77	66.60	63.43
50776	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.125"	-	-	72.94	69.77	66.60	63.43
50777	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.156"	-	-	72.94	69.77	66.60	63.43
50778	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.190"	-	-	72.94	69.77	66.60	63.43
50260	50292	.5000	1/2"	12.700	1/2"	3"	1-1/4"	BALL	-	-	72.94	69.77	66.60	63.43
50666	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	-	-	-	78.14	74.75	71.35	67.95
50779	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	.010"	-	-	83.15	79.53	75.92	72.30
50780	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	.015"	-	-	83.15	79.53	75.92	72.30
50781	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	.020"	-	-	83.15	79.53	75.92	72.30
50782	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	.030"	-	-	83.15	79.53	75.92	72.30
50783	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	.060"	-	-	83.15	79.53	75.92	72.30
50784	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	.090"	-	-	83.15	79.53	75.92	72.30
50785	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	.120"	-	-	83.15	79.53	75.92	72.30
50696	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	BALL	-	-	83.15	79.53	75.92	72.30
50578	50579	.5000	1/2"	12.700	1/2"	4"	1-5/8"	-	-	-	81.24	77.70	74.17	70.64
50580	50581	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.010"	-	-	86.22	82.47	78.72	74.97
50582	50583	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.020"	-	-	86.22	82.47	78.72	74.97
50584	50585	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.030"	-	-	86.22	82.47	78.72	74.97
50586	50587	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.040"	-	-	86.22	82.47	78.72	74.97
50588	50589	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.060"	-	-	86.22	82.47	78.72	74.97
50590	50591	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.120"	-	-	86.22	82.47	78.72	74.97
50592	50593	.5000	1/2"	12.700	1/2"	4"	1-5/8"	BALL	-	-	86.22	82.47	78.72	74.97
50646	-	.5000	1/2"	12.700	1/2"	4"	1-3/4"	-	-	-	81.24	77.70	74.17	70.64
50647	-	.5000	1/2"	12.700	1/2"	4"	2"	-	-	-	81.24	77.70	74.17	70.64
50245	50285	.5000	1/2"	12.700	1/2"	4"	2-1/8"	-	-	-	81.24	77.70	74.17	70.64
50786	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.010"	-	-	86.22	82.47	78.72	74.97
50787	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.015"	-	-	86.22	82.47	78.72	74.97
50788	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.020"	-	-	86.22	82.47	78.72	74.97
50789	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.030"	-	-	86.22	82.47	78.72	74.97
50790	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.060"	-	-	86.22	82.47	78.72	74.97
50791	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.090"	-	-	86.22	82.47	78.72	74.97
50792	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.120"	-	-	86.22	82.47	78.72	74.97
50793	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.125"	-	-	86.22	82.47	78.72	74.97
50794	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.190"	-	-	86.22	82.47	78.72	74.97
50261	50293	.5000	1/2"	12.700	1/2"	4"	2-1/8"	BALL	-	-	86.22	82.47	78.72	74.97

Series V4S, V4R, V4B (continued)

.5000" - .6250"
(12.700mm - 15.875mm)

HIGH PERFORMANCE
END MILLS

EDP#	<i>d1</i> †	<i>d1</i> †		<i>d2</i>	<i>l1</i>	<i>l2</i>	<i>r</i>	<i>l3</i>	<i>d3</i>	1-11	12-24	25-49	50-100	
		Decimal	Metric											Diameter
50668	-	.5000	1/2"	12.700	1/2"	6"	3"	-	-	-	116.92	111.84	106.75	101.67
50795	-	.5000	1/2"	12.700	1/2"	6"	3"	.020"	-	-	121.92	116.62	111.32	106.02
50796	-	.5000	1/2"	12.700	1/2"	6"	3"	.030"	-	-	121.92	116.62	111.32	106.02
50797	-	.5000	1/2"	12.700	1/2"	6"	3"	.060"	-	-	121.92	116.62	111.32	106.02
50798	-	.5000	1/2"	12.700	1/2"	6"	3"	.120"	-	-	121.92	116.62	111.32	106.02
50799	-	.5000	1/2"	12.700	1/2"	6"	3"	.190"	-	-	121.92	116.62	111.32	106.02
50699	-	.5000	1/2"	12.700	1/2"	6"	3"	BALL	-	-	121.92	116.62	111.32	106.02
50610	-	.5000	1/2"	12.700	1/2"	4"	5/8"	-	2-1/4"	.475"	93.38	89.32	85.26	81.20
50228	-	.5000	1/2"	12.700	1/2"	4"	5/8"	.020"	2-1/4"	.470"	98.42	94.14	89.86	85.58
50900	-	.5000	1/2"	12.700	1/2"	4"	5/8"	.030"	2-1/4"	.470"	98.42	94.14	89.86	85.58
50901	-	.5000	1/2"	12.700	1/2"	4"	5/8"	.060"	2-1/4"	.470"	98.42	94.14	89.86	85.58
50902	-	.5000	1/2"	12.700	1/2"	4"	5/8"	.120"	2-1/4"	.470"	98.42	94.14	89.86	85.58
50478	-	.5000	1/2"	12.700	1/2"	4"	5/8"	BALL	2-1/4"	.475"	98.42	94.14	89.86	85.58
50667	-	.5000	1/2"	12.700	1/2"	6"	5/8"	-	3-1/8"	.475"	129.16	123.54	117.93	112.31
50235	-	.5000	1/2"	12.700	1/2"	6"	5/8"	-	4-1/8"	.475"	129.16	123.54	117.93	112.31
50594	-	.5000	1/2"	12.700	1/2"	6"	5/8"	.020"	4-1/8"	.470"	134.15	128.32	122.48	116.65
50596	-	.5000	1/2"	12.700	1/2"	6"	5/8"	.030"	4-1/8"	.470"	134.15	128.32	122.48	116.65
NEW 50697	-	.5000	1/2"	12.700	1/2"	6"	5/8"	BALL	3-1/8"	.475"	134.15	128.32	122.48	116.65
50598	-	.5000	1/2"	12.700	1/2"	6"	5/8"	BALL	4-1/8"	.475"	134.15	128.32	122.48	116.65
50698	-	.5000	1/2"	12.700	1/2"	6"	1"	BALL	4-1/2"	.475"	134.15	128.32	122.48	116.65
50545	50546	.6250	5/8"	15.875	5/8"	3"	3/4"	-	-	-	104.75	100.20	95.64	91.09
50903	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.010"	-	-	113.00	108.09	103.17	98.26
50904	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.015"	-	-	113.00	108.09	103.17	98.26
50498	50499	.6250	5/8"	15.875	5/8"	3"	3/4"	.020"	-	-	113.00	108.09	103.17	98.26
50500	50501	.6250	5/8"	15.875	5/8"	3"	3/4"	.030"	-	-	113.00	108.09	103.17	98.26
50502	50503	.6250	5/8"	15.875	5/8"	3"	3/4"	.060"	-	-	113.00	108.09	103.17	98.26
NEW 50905	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.090"	-	-	113.00	108.09	103.17	98.26
50906	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.120"	-	-	113.00	108.09	103.17	98.26
50907	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.125"	-	-	113.00	108.09	103.17	98.26
NEW 50908	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.156"	-	-	113.00	108.09	103.17	98.26
50909	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.190"	-	-	113.00	108.09	103.17	98.26
NEW 50910	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.250"	-	-	113.00	108.09	103.17	98.26
50246	50286	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	-	-	-	110.77	105.95	101.14	96.32
50911	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.010"	-	-	116.13	111.08	106.03	100.98
50912	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.015"	-	-	116.13	111.08	106.03	100.98
50229	50277	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.020"	-	-	116.13	111.08	106.03	100.98
50534	50535	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.030"	-	-	116.13	111.08	106.03	100.98
50536	50537	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.040"	-	-	116.13	111.08	106.03	100.98
50538	50539	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.060"	-	-	116.13	111.08	106.03	100.98
NEW 50913	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.090"	-	-	116.13	111.08	106.03	100.98
50230	50278	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.120"	-	-	116.13	111.08	106.03	100.98
50914	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.125"	-	-	116.13	111.08	106.03	100.98
NEW 50915	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.156"	-	-	116.13	111.08	106.03	100.98
50916	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.190"	-	-	116.13	111.08	106.03	100.98
50917	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.250"	-	-	116.13	111.08	106.03	100.98
50262	50294	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	BALL	-	-	116.13	111.08	106.03	100.98

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MATERIAL HARDNESS (Rc)

0

continued →

Series V4S, V4R, V4B (continued)

.6250" - .6299"
(15.875mm - 16.000mm)

70
35
0
MATERIAL HARDNESS (Rc)

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	5/8"	Metric	5/8"	4"	1-1/2"							
50669	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	-	-	-	118.30	113.16	108.01	102.87
50918	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.010"	-	-	126.25	120.76	115.27	109.78
50919	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.015"	-	-	126.25	120.76	115.27	109.78
NEW 50920	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.020"	-	-	126.25	120.76	115.27	109.78
50921	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.030"	-	-	126.25	120.76	115.27	109.78
50922	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.060"	-	-	126.25	120.76	115.27	109.78
NEW 50923	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.090"	-	-	126.25	120.76	115.27	109.78
50924	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.120"	-	-	126.25	120.76	115.27	109.78
NEW 50925	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.125"	-	-	126.25	120.76	115.27	109.78
NEW 50926	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.156"	-	-	126.25	120.76	115.27	109.78
50927	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.190"	-	-	126.25	120.76	115.27	109.78
50928	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.250"	-	-	126.25	120.76	115.27	109.78
50700	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	BALL	-	-	126.25	120.76	115.27	109.78
50612	-	.6250	5/8"	15.875	5/8"	4"	1-5/8"	-	-	-	118.30	113.16	108.01	102.87
50670	-	.6250	5/8"	15.875	5/8"	4"	1-3/4"	-	-	-	118.30	113.16	108.01	102.87
50701	-	.6250	5/8"	15.875	5/8"	4"	1-3/4"	BALL	-	-	126.25	120.76	115.27	109.78
50547	-	.6299		16.000	16.0	75	19	-	-	-	109.53	104.76	100.00	95.24
50504	-	.6299		16.000	16.0	75	19	0.50	-	-	117.97	112.84	107.71	102.58
50506	-	.6299		16.000	16.0	75	19	1.00	-	-	117.97	112.84	107.71	102.58
50508	-	.6299		16.000	16.0	75	19	3.00	-	-	117.97	112.84	107.71	102.58
NEW 50929	-	.6299		16.000	16.0	75	19	4.00	-	-	117.97	112.84	107.71	102.58
NEW 50930	-	.6299		16.000	16.0	75	19	5.00	-	-	117.97	112.84	107.71	102.58
NEW 50931	-	.6299		16.000	16.0	75	19	6.00	-	-	117.97	112.84	107.71	102.58
50247	50287	.6299		16.000	16.0	88	32	-	-	-	115.58	110.55	105.53	100.50
50231	50279	.6299		16.000	16.0	88	32	0.50	-	-	121.20	115.93	110.66	105.39
50409	50410	.6299		16.000	16.0	88	32	0.75	-	-	121.20	115.93	110.66	105.39
50411	50412	.6299		16.000	16.0	88	32	1.00	-	-	121.20	115.93	110.66	105.39
50413	50414	.6299		16.000	16.0	88	32	1.50	-	-	121.20	115.93	110.66	105.39
50415	50416	.6299		16.000	16.0	88	32	2.00	-	-	121.20	115.93	110.66	105.39
50932	-	.6299		16.000	16.0	88	32	2.50	-	-	121.20	115.93	110.66	105.39
50417	50418	.6299		16.000	16.0	88	32	3.00	-	-	121.20	115.93	110.66	105.39
50933	-	.6299		16.000	16.0	88	32	4.00	-	-	121.20	115.93	110.66	105.39
50934	-	.6299		16.000	16.0	88	32	5.00	-	-	121.20	115.93	110.66	105.39
NEW 50935	-	.6299		16.000	16.0	88	32	6.00	-	-	121.20	115.93	110.66	105.39
50263	50295	.6299		16.000	16.0	88	32	BALL	-	-	121.20	115.93	110.66	105.39
50671	-	.6299		16.000	16.0	100	48	-	-	-	122.87	117.52	112.18	106.84
50936	-	.6299		16.000	16.0	100	48	0.50	-	-	128.87	123.27	117.66	112.06
50937	-	.6299		16.000	16.0	100	48	1.00	-	-	128.87	123.27	117.66	112.06
50938	-	.6299		16.000	16.0	100	48	1.50	-	-	128.87	123.27	117.66	112.06
50939	-	.6299		16.000	16.0	100	48	2.00	-	-	128.87	123.27	117.66	112.06
50940	-	.6299		16.000	16.0	100	48	3.00	-	-	128.87	123.27	117.66	112.06
50941	-	.6299		16.000	16.0	100	48	4.00	-	-	128.87	123.27	117.66	112.06
50942	-	.6299		16.000	16.0	100	48	5.00	-	-	128.87	123.27	117.66	112.06
50943	-	.6299		16.000	16.0	100	48	6.00	-	-	128.87	123.27	117.66	112.06
50702	-	.6299		16.000	16.0	100	48	BALL	-	-	128.87	123.27	117.66	112.06

	EDP#		d_1 †		d_2 Shank Diameter	l_1 Overall Length	l_2 Flute Length	r Corner Radius	l_3 Reach Length	d_3 Neck Diameter	1-11	12-24	25-49	50-100
	(plain)	(weldon)	Decimal	Diameter Metric										
			.7500	3/4"	3/4"	3"	7/8"	-	-	-	154.74	148.02	141.29	134.56
NEW	50548	-	.7500	3/4"	3/4"	3"	7/8"	.010"	-	-	163.00	155.91	148.83	141.74
NEW	50944	-	.7500	3/4"	3/4"	3"	7/8"	.015"	-	-	163.00	155.91	148.83	141.74
NEW	50945	-	.7500	3/4"	3/4"	3"	7/8"	.020"	-	-	163.00	155.91	148.83	141.74
NEW	50946	-	.7500	3/4"	3/4"	3"	7/8"	.030"	-	-	163.00	155.91	148.83	141.74
NEW	50556	-	.7500	3/4"	3/4"	3"	7/8"	.060"	-	-	163.00	155.91	148.83	141.74
NEW	50947	-	.7500	3/4"	3/4"	3"	7/8"	.120"	-	-	163.00	155.91	148.83	141.74
NEW	50948	-	.7500	3/4"	3/4"	3"	7/8"	-	-	-	158.13	151.25	144.38	137.50
	50549	50550	.7500	3/4"	3/4"	4"	1"	.010"	-	-	166.54	159.30	152.06	144.82
NEW	50949	-	.7500	3/4"	3/4"	4"	1"	.015"	-	-	166.54	159.30	152.06	144.82
NEW	50950	-	.7500	3/4"	3/4"	4"	1"	.020"	-	-	166.54	159.30	152.06	144.82
	50510	50511	.7500	3/4"	3/4"	4"	1"	.030"	-	-	166.54	159.30	152.06	144.82
	50512	50513	.7500	3/4"	3/4"	4"	1"	.060"	-	-	166.54	159.30	152.06	144.82
	50514	50515	.7500	3/4"	3/4"	4"	1"	.090"	-	-	166.54	159.30	152.06	144.82
	50951	-	.7500	3/4"	3/4"	4"	1"	.120"	-	-	166.54	159.30	152.06	144.82
NEW	50952	-	.7500	3/4"	3/4"	4"	1"	.190"	-	-	166.54	159.30	152.06	144.82
	50953	-	.7500	3/4"	3/4"	4"	1"	.250"	-	-	166.54	159.30	152.06	144.82
NEW	50954	-	.7500	3/4"	3/4"	4"	1"	.3125"	-	-	166.54	159.30	152.06	144.82
NEW	50955	-	.7500	3/4"	3/4"	4"	1"	-	-	-	158.13	151.25	144.38	137.50
	50248	50288	.7500	3/4"	3/4"	4"	1-1/2"	.010"	-	-	166.54	159.30	152.06	144.82
	50956	-	.7500	3/4"	3/4"	4"	1-1/2"	.015"	-	-	166.54	159.30	152.06	144.82
NEW	50957	-	.7500	3/4"	3/4"	4"	1-1/2"	.020"	-	-	166.54	159.30	152.06	144.82
	50516	50517	.7500	3/4"	3/4"	4"	1-1/2"	.030"	-	-	166.54	159.30	152.06	144.82
	50232	50280	.7500	3/4"	3/4"	4"	1-1/2"	.060"	-	-	166.54	159.30	152.06	144.82
	50518	50519	.7500	3/4"	3/4"	4"	1-1/2"	.090"	-	-	166.54	159.30	152.06	144.82
	50958	-	.7500	3/4"	3/4"	4"	1-1/2"	.120"	-	-	166.54	159.30	152.06	144.82
	50520	50521	.7500	3/4"	3/4"	4"	1-1/2"	.125"	-	-	166.54	159.30	152.06	144.82
	50959	-	.7500	3/4"	3/4"	4"	1-1/2"	.156"	-	-	166.54	159.30	152.06	144.82
	50960	-	.7500	3/4"	3/4"	4"	1-1/2"	.190"	-	-	166.54	159.30	152.06	144.82
	50961	-	.7500	3/4"	3/4"	4"	1-1/2"	.250"	-	-	166.54	159.30	152.06	144.82
	50962	-	.7500	3/4"	3/4"	4"	1-1/2"	.3125"	-	-	166.54	159.30	152.06	144.82
NEW	50963	-	.7500	3/4"	3/4"	4"	1-1/2"	BALL	-	-	166.54	159.30	152.06	144.82
	50264	50296	.7500	3/4"	3/4"	4"	1-1/2"	-	-	-	158.13	151.25	144.38	137.50
	50551	50552	.7500	3/4"	3/4"	4"	1-3/4"	.010"	-	-	166.54	159.30	152.06	144.82
	50964	-	.7500	3/4"	3/4"	4"	1-3/4"	.015"	-	-	166.54	159.30	152.06	144.82
	50965	-	.7500	3/4"	3/4"	4"	1-3/4"	.020"	-	-	166.54	159.30	152.06	144.82
	50522	50523	.7500	3/4"	3/4"	4"	1-3/4"	.030"	-	-	166.54	159.30	152.06	144.82
	50524	50525	.7500	3/4"	3/4"	4"	1-3/4"	.060"	-	-	166.54	159.30	152.06	144.82
	50526	50527	.7500	3/4"	3/4"	4"	1-3/4"	.090"	-	-	166.54	159.30	152.06	144.82
	50966	-	.7500	3/4"	3/4"	4"	1-3/4"	.120"	-	-	166.54	159.30	152.06	144.82
NEW	50967	-	.7500	3/4"	3/4"	4"	1-3/4"	.125"	-	-	166.54	159.30	152.06	144.82
	50968	-	.7500	3/4"	3/4"	4"	1-3/4"	.156"	-	-	166.54	159.30	152.06	144.82
	50969	-	.7500	3/4"	3/4"	4"	1-3/4"	.190"	-	-	166.54	159.30	152.06	144.82
	50970	-	.7500	3/4"	3/4"	4"	1-3/4"	.250"	-	-	166.54	159.30	152.06	144.82
	50971	-	.7500	3/4"	3/4"	4"	1-3/4"	.3125"	-	-	166.54	159.30	152.06	144.82
NEW	50972	-	.7500	3/4"	3/4"	4"	1-3/4"	-	-	-	158.13	151.25	144.38	137.50

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MATERIAL HARDNESS (Rc)

0

continued →

Series V4S, V4R, V4B (continued)

.7500" - .7874"
(19.050mm - 20.000mm)

MATERIAL HARDNESS (Rc)
70
35
0

	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											
	50553	50554	.7500	3/4"	19.050	3/4"	5"	2-1/8"	-	-	-	212.23	203.01	193.78	184.55
	50973	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.010"	-	-	231.02	220.98	210.93	200.89
NEW	50974	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.015"	-	-	231.02	220.98	210.93	200.89
	50975	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.020"	-	-	231.02	220.98	210.93	200.89
	50976	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.030"	-	-	231.02	220.98	210.93	200.89
	50977	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.060"	-	-	231.02	220.98	210.93	200.89
	50978	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.090"	-	-	231.02	220.98	210.93	200.89
NEW	50979	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.120"	-	-	231.02	220.98	210.93	200.89
	50980	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.125"	-	-	231.02	220.98	210.93	200.89
	50981	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.156"	-	-	231.02	220.98	210.93	200.89
NEW	50982	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.190"	-	-	231.02	220.98	210.93	200.89
	50983	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.250"	-	-	231.02	220.98	210.93	200.89
NEW	50984	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.3125"	-	-	231.02	220.98	210.93	200.89
	50672	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	-	-	-	212.23	203.01	193.78	184.55
	50985	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.010"	-	-	231.02	220.98	210.93	200.89
	50986	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.015"	-	-	231.02	220.98	210.93	200.89
	50987	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.020"	-	-	231.02	220.98	210.93	200.89
	50988	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.030"	-	-	231.02	220.98	210.93	200.89
	50989	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.060"	-	-	231.02	220.98	210.93	200.89
	50990	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.090"	-	-	231.02	220.98	210.93	200.89
NEW	50991	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.120"	-	-	231.02	220.98	210.93	200.89
	50992	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.125"	-	-	231.02	220.98	210.93	200.89
NEW	50993	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.156"	-	-	231.02	220.98	210.93	200.89
	50994	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.190"	-	-	231.02	220.98	210.93	200.89
	50995	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.250"	-	-	231.02	220.98	210.93	200.89
NEW	50996	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.3125"	-	-	231.02	220.98	210.93	200.89
	50703	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	BALL	-	-	231.02	220.98	210.93	200.89
	50555	-	.7874		20.000	20.0	100	25	-	-	-	213.65	204.36	195.07	185.78
	50249	50289	.7874		20.000	20.0	100	38	-	-	-	213.65	204.36	195.07	185.78
NEW	50997	-	.7874		20.000	20.0	100	38	0.50	-	-	235.72	225.47	215.22	204.97
	50528	-	.7874		20.000	20.0	100	38	1.00	-	-	235.72	225.47	215.22	204.97
35	50530	-	.7874		20.000	20.0	100	38	2.00	-	-	235.72	225.47	215.22	204.97
	50998	-	.7874		20.000	20.0	100	38	2.50	-	-	235.72	225.47	215.22	204.97
	50532	-	.7874		20.000	20.0	100	38	3.00	-	-	235.72	225.47	215.22	204.97
	50999	-	.7874		20.000	20.0	100	38	4.00	-	-	235.72	225.47	215.22	204.97
	50121	-	.7874		20.000	20.0	100	38	5.00	-	-	235.72	225.47	215.22	204.97
NEW	50122	-	.7874		20.000	20.0	100	38	6.00	-	-	235.72	225.47	215.22	204.97
NEW	50123	-	.7874		20.000	20.0	100	38	8.00	-	-	235.72	225.47	215.22	204.97
	50265	50297	.7874		20.000	20.0	100	38	BALL	-	-	235.72	225.47	215.22	204.97
	50673	-	.7874		20.000	20.0	100	48	-	-	-	213.65	204.36	195.07	185.78
	50124	-	.7874		20.000	20.0	100	48	0.50	-	-	235.72	225.47	215.22	204.97
NEW	50125	-	.7874		20.000	20.0	100	48	1.00	-	-	235.72	225.47	215.22	204.97
	50126	-	.7874		20.000	20.0	100	48	1.50	-	-	235.72	225.47	215.22	204.97
	50127	-	.7874		20.000	20.0	100	48	2.00	-	-	235.72	225.47	215.22	204.97
	50128	-	.7874		20.000	20.0	100	48	2.50	-	-	235.72	225.47	215.22	204.97
	50129	-	.7874		20.000	20.0	100	48	3.00	-	-	235.72	225.47	215.22	204.97
	50131	-	.7874		20.000	20.0	100	48	4.00	-	-	235.72	225.47	215.22	204.97
	50132	-	.7874		20.000	20.0	100	48	5.00	-	-	235.72	225.47	215.22	204.97
NEW	50133	-	.7874		20.000	20.0	100	48	6.00	-	-	235.72	225.47	215.22	204.97
NEW	50134	-	.7874		20.000	20.0	100	48	8.00	-	-	235.72	225.47	215.22	204.97
	50704	-	.7874		20.000	20.0	100	48	BALL	-	-	235.72	225.47	215.22	204.97

Series V4S, V4R, V4B (continued)

.7874" - 1.000"
(20.000mm - 25.400mm)

HIGH PERFORMANCE
END MILLS

EDP#	<i>d1</i> †	Shank Diameter	<i>d2</i>	<i>l1</i>	<i>l2</i>	<i>r</i>	<i>l3</i>	<i>d3</i>	1-11	12-24	25-49	50-100
50674	-	.7874	20.000	20.0	150	60	-	-	268.07	256.41	244.76	233.10
50135	-	.7874	20.000	20.0	150	60	0.50	-	289.78	277.18	264.58	251.98
50136	-	.7874	20.000	20.0	150	60	1.00	-	289.78	277.18	264.58	251.98
NEW 50137	-	.7874	20.000	20.0	150	60	3.00	-	289.78	277.18	264.58	251.98
50138	-	.7874	20.000	20.0	150	60	6.00	-	289.78	277.18	264.58	251.98
NEW 50705	-	.7874	20.000	20.0	150	60	BALL	-	289.78	277.18	264.58	251.98
50250	50290	1.000	1"	25.400	1"	4"	1-1/2"	-	236.23	225.96	215.69	205.42
NEW 50139	-	1.000	1"	25.400	1"	4"	1-1/2"	.020"	284.34	271.98	259.61	247.25
50233	50281	1.000	1"	25.400	1"	4"	1-1/2"	.030"	284.34	271.98	259.61	247.25
NEW 50141	-	1.000	1"	25.400	1"	4"	1-1/2"	.060"	284.34	271.98	259.61	247.25
NEW 50142	-	1.000	1"	25.400	1"	4"	1-1/2"	.090"	284.34	271.98	259.61	247.25
NEW 50143	-	1.000	1"	25.400	1"	4"	1-1/2"	.120"	284.34	271.98	259.61	247.25
50557	-	1.000	1"	25.400	1"	4"	1-1/2"	.125"	284.34	271.98	259.61	247.25
NEW 50144	-	1.000	1"	25.400	1"	4"	1-1/2"	.156"	284.34	271.98	259.61	247.25
50145	-	1.000	1"	25.400	1"	4"	1-1/2"	.190"	284.34	271.98	259.61	247.25
50146	-	1.000	1"	25.400	1"	4"	1-1/2"	.250"	284.34	271.98	259.61	247.25
NEW 50147	-	1.000	1"	25.400	1"	4"	1-1/2"	.3125"	284.34	271.98	259.61	247.25
50148	-	1.000	1"	25.400	1"	4"	1-1/2"	.375"	284.34	271.98	259.61	247.25
50266	50298	1.000	1"	25.400	1"	4"	1-1/2"	BALL	284.34	271.98	259.61	247.25
50675	-	1.000	1"	25.400	1"	4-1/2"	2"	-	277.83	265.75	253.67	241.59
NEW 50149	-	1.000	1"	25.400	1"	4-1/2"	2"	.020"	317.10	303.31	289.53	275.74
50151	-	1.000	1"	25.400	1"	4-1/2"	2"	.030"	317.10	303.31	289.53	275.74
NEW 50152	-	1.000	1"	25.400	1"	4-1/2"	2"	.060"	317.10	303.31	289.53	275.74
NEW 50153	-	1.000	1"	25.400	1"	4-1/2"	2"	.090"	317.10	303.31	289.53	275.74
NEW 50154	-	1.000	1"	25.400	1"	4-1/2"	2"	.120"	317.10	303.31	289.53	275.74
NEW 50155	-	1.000	1"	25.400	1"	4-1/2"	2"	.156"	317.10	303.31	289.53	275.74
NEW 50156	-	1.000	1"	25.400	1"	4-1/2"	2"	.190"	317.10	303.31	289.53	275.74
NEW 50157	-	1.000	1"	25.400	1"	4-1/2"	2"	.250"	317.10	303.31	289.53	275.74
NEW 50158	-	1.000	1"	25.400	1"	4-1/2"	2"	.3125"	317.10	303.31	289.53	275.74
50706	-	1.000	1"	25.400	1"	4-1/2"	2"	BALL	317.10	303.31	289.53	275.74
50234	50282	1.000	1"	25.400	1"	5"	2-1/8"	.030"	349.85	334.64	319.43	304.22
50676	-	1.000	1"	25.400	1"	5"	2-1/2"	-	316.23	302.48	288.73	274.98
NEW 50159	-	1.000	1"	25.400	1"	5"	2-1/2"	.020"	349.85	334.64	319.43	304.22
NEW 50161	-	1.000	1"	25.400	1"	5"	2-1/2"	.030"	349.85	334.64	319.43	304.22
50162	-	1.000	1"	25.400	1"	5"	2-1/2"	.060"	349.85	334.64	319.43	304.22
NEW 50163	-	1.000	1"	25.400	1"	5"	2-1/2"	.090"	349.85	334.64	319.43	304.22
NEW 50164	-	1.000	1"	25.400	1"	5"	2-1/2"	.120"	349.85	334.64	319.43	304.22
NEW 50165	-	1.000	1"	25.400	1"	5"	2-1/2"	.156"	349.85	334.64	319.43	304.22
NEW 50166	-	1.000	1"	25.400	1"	5"	2-1/2"	.190"	349.85	334.64	319.43	304.22
50167	-	1.000	1"	25.400	1"	5"	2-1/2"	.250"	349.85	334.64	319.43	304.22
NEW 50168	-	1.000	1"	25.400	1"	5"	2-1/2"	.3125"	349.85	334.64	319.43	304.22
50707	-	1.000	1"	25.400	1"	5"	2-1/2"	BALL	349.85	334.64	319.43	304.22

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MATERIAL HARDNESS (Rc)

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