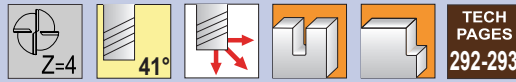


Series VRX **NEW ITEMS** HIGH EFFICIENCY MILLING

.0591" - .1181"  
(1.500mm - 3.000mm)



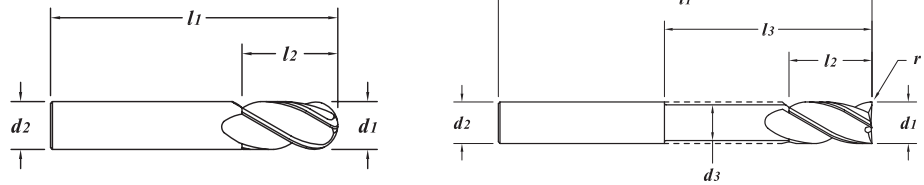
TOLERANCES	
d1	+0.000" - .002" (+.000mm - .050mm)
d2	h6
r	+0.001" - .001" (+.025 - .025mm)

Recommended for inconel, pH materials, titanium and tool steels >40Rc

Square End, Corner Radius, Ball End  
AlTiN Coating

Solid submicron grain carbide end mill - center cutting  
Excellent for High Efficiency Milling  
Reduces vibration for more aggressive machining resulting in less cycle times and greater productivity  
Staggered flute geometry

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



70  
35  
0  
MATERIAL HARDNESS (Rc)

EDP#	D1 †	D2	L1	L2	r	L3	D3						
								(plain)	(weldon)	1-11	12-24	25-49	50-100
	Decimal	Metric	Shank Diameter	Overall Length	Flute Length	Corner Radius	Reach Length	Neck Diameter					
61084	-	.0591	1.500	3.0	38	3.0	-	-	-	15.08	14.42	13.77	13.11
61086	-	.0591	1.500	3.0	38	3.0	0.20	-	-	17.10	16.36	15.61	14.87
61088	-	.0591	1.500	3.0	38	3.0	BALL	-	-	17.10	16.36	15.61	14.87
61090	-	.0591	1.500	3.0	38	6.0	-	-	-	15.08	14.42	13.77	13.11
61092	-	.0591	1.500	3.0	38	6.0	0.20	-	-	17.10	16.36	15.61	14.87
61094	-	.0591	1.500	3.0	38	6.0	BALL	-	-	17.10	16.36	15.61	14.87
61096	-	.0625	1/16"	1.588	1/8"	1-1/2"	1/8"	-	-	14.21	13.60	12.98	12.36
61098	-	.0625	1/16"	1.588	1/8"	1-1/2"	1/8"	.010"	-	16.11	15.41	14.71	14.01
61100	-	.0625	1/16"	1.588	1/8"	1-1/2"	1/8"	BALL	-	16.11	15.41	14.71	14.01
61102	-	.0625	1/16"	1.588	1/8"	1-1/2"	1/4"	-	-	14.21	13.60	12.98	12.36
61104	-	.0625	1/16"	1.588	1/8"	1-1/2"	1/4"	.010"	-	16.11	15.41	14.71	14.01
61106	-	.0625	1/16"	1.588	1/8"	1-1/2"	1/4"	BALL	-	16.11	15.41	14.71	14.01
61108	-	.0787	2.000	3.0	38	4.0	-	-	-	14.21	13.60	12.98	12.36
61110	-	.0787	2.000	3.0	38	4.0	0.20	-	-	16.11	15.41	14.71	14.01
61112	-	.0787	2.000	3.0	38	4.0	BALL	-	-	16.11	15.41	14.71	14.01
61114	-	.0787	2.000	3.0	38	8.0	-	-	-	14.21	13.60	12.98	12.36
61116	-	.0787	2.000	3.0	38	8.0	0.20	-	-	16.11	15.41	14.71	14.01
61118	-	.0787	2.000	3.0	38	8.0	BALL	-	-	16.11	15.41	14.71	14.01
61120	-	.0938	3/32"	2.383	1/8"	1-1/2"	3/16"	-	-	13.57	12.98	12.39	11.80
61122	-	.0938	3/32"	2.383	1/8"	1-1/2"	3/16"	.010"	-	15.53	14.85	14.18	13.50
61124	-	.0938	3/32"	2.383	1/8"	1-1/2"	3/16"	BALL	-	15.53	14.85	14.18	13.50
61126	-	.0938	3/32"	2.383	1/8"	1-1/2"	3/8"	-	-	13.57	12.98	12.39	11.80
61128	-	.0938	3/32"	2.383	1/8"	1-1/2"	3/8"	.010"	-	15.53	14.85	14.18	13.50
61130	-	.0938	3/32"	2.383	1/8"	1-1/2"	3/8"	BALL	-	15.53	14.85	14.18	13.50
61877	-	.1181	3.000	3.0	38	8	-	-	-	12.75	12.20	11.64	11.09
27420	-	.1181	3.000	3.0	50	8	0.20	-	-	14.34	13.72	13.09	12.47
61132	-	.1181	3.000	3.0	50	8	0.30	-	-	14.34	13.72	13.09	12.47
27425	-	.1181	3.000	3.0	50	8	0.50	-	-	14.34	13.72	13.09	12.47
61134	-	.1181	3.000	3.0	50	8	BALL	-	-	14.34	13.72	13.09	12.47
61887	-	.1181	3.000	3.0	38	12	-	-	-	12.75	12.20	11.64	11.09
27430	-	.1181	3.000	3.0	50	12	0.20	-	-	14.34	13.72	13.09	12.47
61136	-	.1181	3.000	3.0	50	12	0.30	-	-	14.34	13.72	13.09	12.47
27435	-	.1181	3.000	3.0	50	12	0.50	-	-	14.34	13.72	13.09	12.47
61138	-	.1181	3.000	3.0	50	12	BALL	-	-	14.34	13.72	13.09	12.47

EDP#	(plain) (weldon)	d1 †		d2	l1	l2	r	l3	d3	1-11	12-24	25-49	50-100	
		Decimal	Diameter											Metric
61917	-	.1250	1/8"	3.175	1/8"	1-1/2"	1/4"	-	-	-	12.75	12.20	11.64	11.09
27440	-	.1250	1/8"	3.175	1/8"	1-1/2"	1/4"	.010"	-	-	14.34	13.72	13.09	12.47
61140	-	.1250	1/8"	3.175	1/8"	1-1/2"	1/4"	.015"	-	-	14.34	13.72	13.09	12.47
61073	-	.1250	1/8"	3.175	1/8"	1-1/2"	1/4"	.030"	-	-	14.34	13.72	13.09	12.47
61142	-	.1250	1/8"	3.175	1/8"	1-1/2"	1/4"	BALL	-	-	14.34	13.72	13.09	12.47
61144	-	.1250	1/8"	3.175	1/8"	1-1/2"	3/8"	-	-	-	12.75	12.20	11.64	11.09
61146	-	.1250	1/8"	3.175	1/8"	1-1/2"	3/8"	.010"	-	-	14.34	13.72	13.09	12.47
61148	-	.1250	1/8"	3.175	1/8"	1-1/2"	3/8"	.015"	-	-	14.34	13.72	13.09	12.47
61074	-	.1250	1/8"	3.175	1/8"	1-1/2"	3/8"	.030"	-	-	14.34	13.72	13.09	12.47
61149	-	.1250	1/8"	3.175	1/8"	1-1/2"	3/8"	BALL	-	-	14.34	13.72	13.09	12.47
61927	-	.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	-	-	-	12.75	12.20	11.64	11.09
27450	-	.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	.010"	-	-	14.34	13.72	13.09	12.47
61150	-	.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	.015"	-	-	14.34	13.72	13.09	12.47
27455	-	.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	.020"	-	-	14.34	13.72	13.09	12.47
61075	-	.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	.030"	-	-	14.34	13.72	13.09	12.47
61152	-	.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	BALL	-	-	14.34	13.72	13.09	12.47
61154	-	.1562	5/32"	3.967	3/16"	2"	5/16"	-	-	-	16.80	16.07	15.34	14.61
27460	-	.1562	5/32"	3.967	3/16"	2"	5/16"	.010"	-	-	19.77	18.91	18.05	17.19
61156	-	.1562	5/32"	3.967	3/16"	2"	5/16"	.015"	-	-	19.77	18.91	18.05	17.19
61076	-	.1562	5/32"	3.967	3/16"	2"	5/16"	.030"	-	-	19.77	18.91	18.05	17.19
61077	-	.1562	5/32"	3.967	3/16"	2"	5/16"	BALL	-	-	19.77	18.91	18.05	17.19
61158	-	.1562	5/32"	3.967	3/16"	2"	1/2"	-	-	-	16.80	16.07	15.34	14.61
27470	-	.1562	5/32"	3.967	3/16"	2"	1/2"	.010"	-	-	19.77	18.91	18.05	17.19
61160	-	.1562	5/32"	3.967	3/16"	2"	1/2"	.015"	-	-	19.77	18.91	18.05	17.19
61078	-	.1562	5/32"	3.967	3/16"	2"	1/2"	.030"	-	-	19.77	18.91	18.05	17.19
61079	-	.1562	5/32"	3.967	3/16"	2"	1/2"	BALL	-	-	19.77	18.91	18.05	17.19
61162	-	.1575		4.000	6.0	50	8	-	-	-	23.93	22.89	21.85	20.81
27480	-	.1575		4.000	6.0	50	8	0.30	-	-	24.30	23.24	22.19	21.13
61164	-	.1575		4.000	6.0	50	8	0.50	-	-	24.30	23.24	22.19	21.13
28470	-	.1575		4.000	6.0	50	8	BALL	-	-	24.30	23.24	22.19	21.13
61977	-	.1575		4.000	6.0	50	12	-	-	-	23.93	22.89	21.85	20.81
27490	-	.1575		4.000	6.0	50	12	0.30	-	-	24.30	23.24	22.19	21.13
27495	-	.1575		4.000	6.0	50	12	0.50	-	-	24.30	23.24	22.19	21.13
28480	-	.1575		4.000	6.0	50	12	BALL	-	-	24.30	23.24	22.19	21.13
61166	-	.1575		4.000	6.0	65	19	-	-	-	26.54	25.39	24.23	23.08
61168	-	.1575		4.000	6.0	65	19	0.30	-	-	26.93	25.76	24.59	23.42
62007	-	.1875	3/16"	4.763	3/16"	2"	5/16"	-	-	-	16.08	15.38	14.68	13.98
27500	-	.1875	3/16"	4.763	3/16"	2"	5/16"	.010"	-	-	18.01	17.23	16.44	15.66
61170	-	.1875	3/16"	4.763	3/16"	2"	5/16"	.015"	-	-	18.01	17.23	16.44	15.66
61172	-	.1875	3/16"	4.763	3/16"	2"	5/16"	.020"	-	-	18.01	17.23	16.44	15.66
28490	-	.1875	3/16"	4.763	3/16"	2"	5/16"	BALL	-	-	18.01	17.23	16.44	15.66
61174	-	.1875	3/16"	4.763	3/16"	2"	7/16"	-	-	-	16.08	15.38	14.68	13.98
61176	-	.1875	3/16"	4.763	3/16"	2"	7/16"	.010"	-	-	18.01	17.23	16.44	15.66
61178	-	.1875	3/16"	4.763	3/16"	2"	7/16"	.015"	-	-	18.01	17.23	16.44	15.66
62017	-	.1875	3/16"	4.763	3/16"	2"	9/16"	-	-	-	16.08	15.38	14.68	13.98
27520	-	.1875	3/16"	4.763	3/16"	2"	9/16"	.010"	-	-	18.01	17.23	16.44	15.66
61180	-	.1875	3/16"	4.763	3/16"	2"	9/16"	.015"	-	-	18.01	17.23	16.44	15.66
27521	-	.1875	3/16"	4.763	3/16"	2"	9/16"	.020"	-	-	18.01	17.23	16.44	15.66
61182	-	.1875	3/16"	4.763	3/16"	2"	9/16"	.030"	-	-	18.01	17.23	16.44	15.66
28500	-	.1875	3/16"	4.763	3/16"	2"	9/16"	BALL	-	-	18.01	17.23	16.44	15.66
61184	-	.1875	3/16"	4.763	3/16"	3"	1"	.010"	-	-	30.82	29.48	28.14	26.80
61186	-	.1875	3/16"	4.763	3/16"	3"	1-1/4"	.010"	-	-	30.82	29.48	28.14	26.80
63100	-	.1875	3/16"	4.763	3/16"	4"	5/16"	.010"	-	-	33.55	32.09	30.63	29.17
61188	-	.1969		5.000	6.0	50	10	-	-	-	23.44	22.42	21.40	20.38
27522	-	.1969		5.000	6.0	50	10	0.30	-	-	23.82	22.78	21.75	20.71
61190	-	.1969		5.000	6.0	50	10	0.50	-	-	23.82	22.78	21.75	20.71
28510	-	.1969		5.000	6.0	50	10	BALL	-	-	23.82	22.78	21.75	20.71

70

35

MATERIAL HARDNESS (Rc)

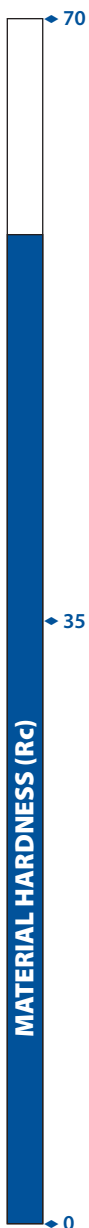
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continued →

Series VRX (continued)

.1969" - .2500"  
(5.000mm - 6.350mm)

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											
62057	-	.1969	5.000	6.0	65	15	-	-	-	25.60	24.49	23.37	22.26	
27524	-	.1969	5.000	6.0	65	15	0.30	-	-	26.38	25.23	24.09	22.94	
27526	-	.1969	5.000	6.0	65	15	0.50	-	-	26.38	25.23	24.09	22.94	
27528	-	.1969	5.000	6.0	65	15	1.00	-	-	26.38	25.23	24.09	22.94	
28520	-	.1969	5.000	6.0	65	15	BALL	-	-	26.38	25.23	24.09	22.94	
63110	-	.1969	5.000	6.0	100	10	0.30	-	-	50.55	48.36	46.16	43.96	
61192	-	.1969	5.000	6.0	100	10	0.30	55	4.70	59.20	56.63	54.05	51.48	
61194	-	.2188	7/32"	5.558	1/4"	2"	3/8"	-	-	19.76	18.90	18.04	17.18	
61196	-	.2188	7/32"	5.558	1/4"	2"	3/8"	.010"	-	22.91	21.91	20.92	19.92	
27525	-	.2188	7/32"	5.558	1/4"	2"	3/8"	.015"	-	22.91	21.91	20.92	19.92	
61198	-	.2188	7/32"	5.558	1/4"	2"	3/8"	BALL	-	22.91	21.91	20.92	19.92	
61200	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	-	-	22.43	21.45	20.48	19.50	
61202	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	.010"	-	25.40	24.30	23.19	22.09	
27530	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	.015"	-	25.40	24.30	23.19	22.09	
61204	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	.020"	-	25.40	24.30	23.19	22.09	
61206	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	BALL	-	25.40	24.30	23.19	22.09	
61208	-	.2188	7/32"	5.558	1/4"	3"	1-1/4"	.015"	-	37.65	36.01	34.38	32.74	
63120	-	.2188	7/32"	5.558	1/4"	4"	3/8"	.015"	-	48.82	46.70	44.57	42.45	
61210	-	.2188	7/32"	5.558	1/4"	4"	3/8"	.015"	2-1/4"	.205"	57.47	54.97	52.47	49.97
62077	-	.2362	6.000	6.0	50	12	-	-	-	19.93	19.06	18.20	17.33	
27535	-	.2362	6.000	6.0	50	12	0.30	-	-	23.05	22.04	21.04	20.04	
61212	-	.2362	6.000	6.0	50	12	0.50	-	-	23.05	22.04	21.04	20.04	
61214	-	.2362	6.000	6.0	50	12	0.75	-	-	23.05	22.04	21.04	20.04	
28530	-	.2362	6.000	6.0	50	12	BALL	-	-	23.05	22.04	21.04	20.04	
62087	-	.2362	6.000	6.0	65	19	-	-	-	22.46	21.48	20.51	19.53	
61216	-	.2362	6.000	6.0	65	19	0.20	-	-	25.54	24.43	23.32	22.21	
27540	-	.2362	6.000	6.0	65	19	0.30	-	-	25.54	24.43	23.32	22.21	
27545	-	.2362	6.000	6.0	65	19	0.50	-	-	25.54	24.43	23.32	22.21	
61218	-	.2362	6.000	6.0	65	19	0.75	-	-	25.54	24.43	23.32	22.21	
27547	-	.2362	6.000	6.0	65	19	1.00	-	-	25.54	24.43	23.32	22.21	
27548	-	.2362	6.000	6.0	65	19	1.50	-	-	25.54	24.43	23.32	22.21	
28540	-	.2362	6.000	6.0	65	19	BALL	-	-	25.54	24.43	23.32	22.21	
61220	-	.2362	6.000	6.0	75	26	0.30	-	-	38.00	36.34	34.69	33.04	
61222	-	.2362	6.000	6.0	75	26	0.50	-	-	38.00	36.34	34.69	33.04	
61224	-	.2362	6.000	6.0	75	38	0.30	-	-	38.00	36.34	34.69	33.04	
61226	-	.2362	6.000	6.0	75	38	0.50	-	-	38.00	36.34	34.69	33.04	
63130	-	.2362	6.000	6.0	100	12	0.30	32	5.70	49.29	47.15	45.00	42.86	
62137	-	.2500	1/4"	6.350	1/4"	2"	3/8"	-	-	19.12	18.29	17.46	16.63	
61228	-	.2500	1/4"	6.350	1/4"	2"	3/8"	.010"	-	21.32	20.39	19.47	18.54	
27560	-	.2500	1/4"	6.350	1/4"	2"	3/8"	.015"	-	22.17	21.21	20.24	19.28	
61230	-	.2500	1/4"	6.350	1/4"	2"	3/8"	.020"	-	22.17	21.21	20.24	19.28	
28570	-	.2500	1/4"	6.350	1/4"	2"	3/8"	BALL	-	22.17	21.21	20.24	19.28	
61232	-	.2500	1/4"	6.350	1/4"	2"	1/2"	-	-	19.12	18.29	17.46	16.63	
61234	-	.2500	1/4"	6.350	1/4"	2"	1/2"	.015"	-	22.17	21.21	20.24	19.28	
62147	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	-	-	21.69	20.75	19.80	18.86	
27570	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.010"	-	24.56	23.50	22.43	21.36	
27580	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.015"	-	24.56	23.50	22.43	21.36	
61236	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.020"	-	24.56	23.50	22.43	21.36	
27581	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.030"	-	24.56	23.50	22.43	21.36	
61238	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.040"	-	24.56	23.50	22.43	21.36	
27583	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.060"	-	24.56	23.50	22.43	21.36	
28580	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	BALL	-	24.56	23.50	22.43	21.36	



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												
61240	-	.2500	1/4"	6.350	1/4"	3"	1"	.015"	-	-	36.40	34.82	33.23	31.65
61241	-	.2500	1/4"	6.350	1/4"	3"	1-1/8"	.030"	-	-	36.40	34.82	33.23	31.65
61242	-	.2500	1/4"	6.350	1/4"	3"	1-1/2"	.015"	-	-	36.40	34.82	33.23	31.65
61244	-	.2500	1/4"	6.350	1/4"	4"	3/8"	.015"	3/4"	.240"	47.60	45.53	43.46	41.39
63140	-	.2500	1/4"	6.350	1/4"	4"	3/8"	.015"	1-1/4"	.240"	47.60	45.53	43.46	41.39
61246	-	.2500	1/4"	6.350	1/4"	4"	3/8"	.015"	2-1/8"	.240"	47.60	45.53	43.46	41.39
27585	-	.2756		7.000	8.0	50	12	0.30	-	-	35.96	34.40	32.83	31.27
27590	-	.2756		7.000	8.0	65	22	0.30	-	-	39.53	37.81	36.09	34.37
61248	-	.2812	9/32"	7.142	5/16"	2"	7/16"	-	-	-	30.25	28.93	27.62	26.30
27595	-	.2812	9/32"	7.142	5/16"	2"	7/16"	.015"	-	-	34.66	33.15	31.65	30.14
61250	-	.2812	9/32"	7.142	5/16"	2-1/2"	13/16"	-	-	-	35.40	33.86	32.32	30.78
61252	-	.2812	9/32"	7.142	5/16"	2-1/2"	13/16"	.010"	-	-	38.10	36.44	34.79	33.13
27597	-	.2812	9/32"	7.142	5/16"	2-1/2"	13/16"	.015"	-	-	38.10	36.44	34.79	33.13
61254	-	.2812	9/32"	7.142	5/16"	2-1/2"	13/16"	.020"	-	-	38.10	36.44	34.79	33.13
63150	-	.2812	9/32"	7.142	5/16"	4"	7/16"	.015"	-	-	65.83	62.96	60.10	57.24
62207	-	.3125	5/16"	7.938	5/16"	2"	7/16"	-	-	-	26.43	25.28	24.13	22.98
61256	-	.3125	5/16"	7.938	5/16"	2"	7/16"	.010"	-	-	30.29	28.97	27.66	26.34
61258	-	.3125	5/16"	7.938	5/16"	2"	7/16"	.015"	-	-	30.29	28.97	27.66	26.34
27600	-	.3125	5/16"	7.938	5/16"	2"	7/16"	.020"	-	-	30.29	28.97	27.66	26.34
61260	-	.3125	5/16"	7.938	5/16"	2"	7/16"	.030"	-	-	30.29	28.97	27.66	26.34
28610	-	.3125	5/16"	7.938	5/16"	2"	7/16"	BALL	-	-	30.29	28.97	27.66	26.34
62217	-	.3125	5/16"	7.938	5/16"	2-1/2"	13/16"	-	-	-	30.92	29.58	28.23	26.89
27610	-	.3125	5/16"	7.938	5/16"	2-1/2"	13/16"	.010"	-	-	33.29	31.85	30.40	28.95
61262	-	.3125	5/16"	7.938	5/16"	2-1/2"	13/16"	.015"	-	-	33.29	31.85	30.40	28.95
27620	-	.3125	5/16"	7.938	5/16"	2-1/2"	13/16"	.020"	-	-	33.29	31.85	30.40	28.95
27622	-	.3125	5/16"	7.938	5/16"	2-1/2"	13/16"	.030"	-	-	33.29	31.85	30.40	28.95
61264	-	.3125	5/16"	7.938	5/16"	2-1/2"	13/16"	.040"	-	-	33.29	31.85	30.40	28.95
27624	-	.3125	5/16"	7.938	5/16"	2-1/2"	13/16"	.060"	-	-	33.29	31.85	30.40	28.95
28620	-	.3125	5/16"	7.938	5/16"	2-1/2"	13/16"	BALL	-	-	33.29	31.85	30.40	28.95
61266	-	.3125	5/16"	7.938	5/16"	3"	1-1/4"	.015"	-	-	46.41	44.40	42.38	40.36
63160	-	.3125	5/16"	7.938	5/16"	4"	7/16"	.020"	1-7/8"	.300"	64.19	61.40	58.61	55.82
62257	-	.3150		8.000	8.0	50	12	-	-	-	27.52	26.32	25.13	23.93
61268	-	.3150		8.000	8.0	50	12	0.30	-	-	31.41	30.04	28.68	27.31
27630	-	.3150		8.000	8.0	50	12	0.50	-	-	31.41	30.04	28.68	27.31
61270	-	.3150		8.000	8.0	50	12	0.75	-	-	31.41	30.04	28.68	27.31
28630	-	.3150		8.000	8.0	50	12	BALL	-	-	31.41	30.04	28.68	27.31
62267	-	.3150		8.000	8.0	65	22	-	-	-	32.05	30.66	29.26	27.87
27635	-	.3150		8.000	8.0	65	22	0.30	-	-	34.55	33.04	31.54	30.04
27640	-	.3150		8.000	8.0	65	22	0.50	-	-	34.55	33.04	31.54	30.04
61272	-	.3150		8.000	8.0	65	22	0.75	-	-	34.55	33.04	31.54	30.04
27642	-	.3150		8.000	8.0	65	22	1.00	-	-	34.55	33.04	31.54	30.04
27643	-	.3150		8.000	8.0	65	22	1.50	-	-	34.55	33.04	31.54	30.04
61274	-	.3150		8.000	8.0	65	22	2.00	-	-	34.55	33.04	31.54	30.04
28640	-	.3150		8.000	8.0	65	22	BALL	-	-	34.55	33.04	31.54	30.04
61276	-	.3150		8.000	8.0	75	38	0.50	-	-	48.39	46.29	44.18	42.08
61278	-	.3150		8.000	8.0	100	50	0.50	-	-	55.28	52.88	50.47	48.07
63170	-	.3150		8.000	8.0	100	12	0.50	47	7.60	66.40	63.51	60.63	57.74
61280	-	.3438	11/32"	8.733	3/8"	2"	1/2"	-	-	-	35.34	33.80	32.27	30.73
27645	-	.3438	11/32"	8.733	3/8"	2"	1/2"	.020"	-	-	40.45	38.69	36.93	35.17
61282	-	.3438	11/32"	8.733	3/8"	2-1/2"	7/8"	-	-	-	41.29	39.49	37.70	35.90
27650	-	.3438	11/32"	8.733	3/8"	2-1/2"	7/8"	.020"	-	-	43.98	42.06	40.15	38.24
61284	-	.3438	11/32"	8.733	3/8"	3"	1-1/4"	.015"	-	-	57.88	55.36	52.85	50.33

70

35

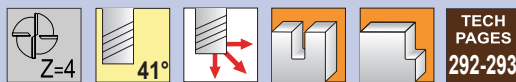
MATERIAL HARDNESS (Rc)

0

continued →

d1	+0.00" -0.02" (+0.000mm -0.50mm)
d2	h6
r	+0.01" -0.01" (+0.025 -0.25mm)

.3438" - .3937"  
(8.733mm - 10.000mm)



Recommended for inconel, pH materials, titanium and tool steels >40Rc



**AlTiN Coating**

Solid submicron grain carbide end mill - center cutting

Excellent for High Efficiency Milling

Reduces vibration for more aggressive machining resulting in less cycle times and greater productivity

Staggered flute geometry

MATERIAL HARDNESS (Rc)  
70  
35  
0

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												
63180	-	.3438	11/32"	8.733	3/8"	4"	1/2"	.020"	-	-	70.48	67.42	64.35	61.29
27655	-	.3543		9.000	10.0	50	14	0.50	-	-	48.83	46.71	44.58	42.46
62287	-	.3543		9.000	10.0	65	22	-	-	-	49.50	47.34	45.19	43.04
27657	-	.3543		9.000	10.0	65	22	0.50	-	-	53.08	50.78	48.47	46.16
62317	-	.3750	3/8"	9.525	3/8"	2"	1/2"	-	-	-	31.22	29.87	28.51	27.15
27658	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.010"	-	-	35.75	34.20	32.64	31.09
61286	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.015"	-	-	35.75	34.20	32.64	31.09
27660	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.020"	-	-	35.75	34.20	32.64	31.09
27662	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.030"	-	-	35.75	34.20	32.64	31.09
61288	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.060"	-	-	35.75	34.20	32.64	31.09
28670	-	.3750	3/8"	9.525	3/8"	2"	1/2"	BALL	-	-	35.75	34.20	32.64	31.09
62327	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	-	-	-	36.49	34.90	33.32	31.73
27670	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.010"	-	-	38.88	37.19	35.50	33.81
61290	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.015"	-	-	38.88	37.19	35.50	33.81
27680	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.020"	-	-	38.88	37.19	35.50	33.81
27682	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.030"	-	-	38.88	37.19	35.50	33.81
61292	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.040"	-	-	38.88	37.19	35.50	33.81
61294	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.050"	-	-	38.88	37.19	35.50	33.81
27684	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.060"	-	-	38.88	37.19	35.50	33.81
61296	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.094"	-	-	38.88	37.19	35.50	33.81
28680	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	BALL	-	-	38.88	37.19	35.50	33.81
61298	-	.3750	3/8"	9.525	3/8"	3"	1-1/4"	.015"	-	-	51.16	48.94	46.71	44.49
61299	-	.3750	3/8"	9.525	3/8"	3"	1-1/4"	.030"	-	-	51.16	48.94	46.71	44.49
61300	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"	.015"	-	-	57.58	55.08	52.57	50.07
61302	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"	BALL	-	-	57.58	55.08	52.57	50.07
61304	-	.3750	3/8"	9.525	3/8"	4"	2"	.015"	-	-	57.58	55.08	52.57	50.07
61306	-	.3750	3/8"	9.525	3/8"	4"	1/2"	.015"	1-1/8"	.360"	68.71	65.73	62.74	59.75
63190	-	.3750	3/8"	9.525	3/8"	4"	1/2"	.020"	1-7/8"	.360"	68.71	65.73	62.74	59.75
61308	-	.3750	3/8"	9.525	3/8"	4"	1/2"	.015"	2-1/8"	.360"	68.71	65.73	62.74	59.75
61310	-	.3750	3/8"	9.525	3/8"	6"	1/2"	.015"	3-1/8"	.360"	90.85	86.90	82.95	79.00
61312	-	.3937		10.000	10.0	50	16	-	-	-	40.24	38.49	36.74	34.99
27690	-	.3937		10.000	10.0	50	16	0.50	-	-	43.16	41.28	39.41	37.53
61314	-	.3937		10.000	10.0	50	16	1.00	-	-	43.16	41.28	39.41	37.53
28690	-	.3937		10.000	10.0	50	16	BALL	-	-	43.16	41.28	39.41	37.53
62397	-	.3937		10.000	10.0	70	22	-	-	-	43.76	41.86	39.95	38.05
27698	-	.3937		10.000	10.0	70	22	0.30	-	-	46.94	44.90	42.86	40.82
27700	-	.3937		10.000	10.0	70	22	0.50	-	-	46.94	44.90	42.86	40.82
61316	-	.3937		10.000	10.0	70	22	0.75	-	-	46.94	44.90	42.86	40.82
27702	-	.3937		10.000	10.0	70	22	1.00	-	-	46.94	44.90	42.86	40.82
28700	-	.3937		10.000	10.0	70	22	BALL	-	-	46.94	44.90	42.86	40.82
61318	-	.3937		10.000	10.0	70	32	0.50	-	-	46.94	44.90	42.86	40.82
61320	-	.3937		10.000	10.0	100	38	0.50	-	-	72.90	69.73	66.56	63.39
61322	-	.3937		10.000	10.0	100	50	0.50	-	-	72.90	69.73	66.56	63.39
63200	-	.3937		10.000	10.0	100	14	0.50	47	9.50	84.03	80.38	76.72	73.07

EDP#		$d1$ †			$d2$	$l1$	$l2$	$r$	$l3$	$d3$	1-11	12-24	25-49	50-100
(plain)	(weldon)	Decimal	Diameter	Metric	Shank Diameter	Overall Length	Flute Length	Corner Radius	Reach Length	Neck Diameter				
27705	-	.4375	7/16"	11.113	7/16"	2-1/2"	5/8"	.020"	-	-	47.01	44.97	42.92	40.88
28705	-	.4375	7/16"	11.113	7/16"	2-1/2"	5/8"	BALL	-	-	47.01	44.97	42.92	40.88
62437	-	.4375	7/16"	11.113	7/16"	2-3/4"	7/8"	-	-	-	43.87	41.97	40.06	38.15
27708	-	.4375	7/16"	11.113	7/16"	2-3/4"	7/8"	.010"	-	-	47.01	44.97	42.92	40.88
27710	-	.4375	7/16"	11.113	7/16"	2-3/4"	7/8"	.020"	-	-	47.01	44.97	42.92	40.88
28710	-	.4375	7/16"	11.113	7/16"	2-3/4"	7/8"	BALL	-	-	47.01	44.97	42.92	40.88
63210	-	.4375	7/16"	11.113	7/16"	6"	1"	.020"	-	-	101.35	96.94	92.54	88.13
62475	-	.4724		12.000	12.0	65	19	-	-	-	53.27	50.95	48.64	46.32
27712	-	.4724		12.000	12.0	65	19	0.30	-	-	61.96	59.27	56.57	53.88
27715	-	.4724		12.000	12.0	65	19	0.50	-	-	61.96	59.27	56.57	53.88
28715	-	.4724		12.000	12.0	65	19	BALL	-	-	61.96	59.27	56.57	53.88
61324	-	.4724		12.000	12.0	75	26	-	-	-	56.83	54.36	51.89	49.42
61326	-	.4724		12.000	12.0	75	26	0.50	-	-	69.13	66.12	63.12	60.11
62485	-	.4724		12.000	12.0	75	32	-	-	-	56.83	54.36	51.89	49.42
27718	-	.4724		12.000	12.0	75	32	0.30	-	-	69.13	66.12	63.12	60.11
27720	-	.4724		12.000	12.0	75	32	0.50	-	-	69.13	66.12	63.12	60.11
61328	-	.4724		12.000	12.0	75	32	0.75	-	-	69.13	66.12	63.12	60.11
27722	-	.4724		12.000	12.0	75	32	1.00	-	-	69.13	66.12	63.12	60.11
27730	-	.4724		12.000	12.0	75	32	1.50	-	-	69.13	66.12	63.12	60.11
27735	-	.4724		12.000	12.0	75	32	2.00	-	-	69.13	66.12	63.12	60.11
61330	-	.4724		12.000	12.0	75	32	3.00	-	-	69.13	66.12	63.12	60.11
28720	-	.4724		12.000	12.0	75	32	BALL	-	-	69.13	66.12	63.12	60.11
61332	-	.4724		12.000	12.0	100	38	-	-	-	77.51	74.14	70.77	67.40
61334	-	.4724		12.000	12.0	100	38	0.50	-	-	81.89	78.33	74.77	71.21
61336	-	.4724		12.000	12.0	100	42	-	-	-	77.51	74.14	70.77	67.40
61338	-	.4724		12.000	12.0	100	42	0.50	-	-	81.89	78.33	74.77	71.21
61340	-	.4724		12.000	12.0	100	52	-	-	-	77.51	74.14	70.77	67.40
61342	-	.4724		12.000	12.0	100	52	0.50	-	-	81.89	78.33	74.77	71.21
63220	-	.4724		12.000	12.0	150	19	0.50	57	11.50	121.96	116.66	111.35	106.05
62525	62527	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	-	-	-	51.08	48.86	46.64	44.42
27739	27738	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.010"	-	-	59.42	56.84	54.25	51.67
61344	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.015"	-	-	59.42	56.84	54.25	51.67
27741	27740	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.020"	-	-	59.42	56.84	54.25	51.67
27743	27742	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.030"	-	-	59.42	56.84	54.25	51.67
61346	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.060"	-	-	59.42	56.84	54.25	51.67
28751	28750	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	BALL	-	-	59.42	56.84	54.25	51.67
61348	-	.5000	1/2"	12.700	1/2"	3"	1"	-	-	-	54.58	52.21	49.83	47.46
61350	-	.5000	1/2"	12.700	1/2"	3"	1"	.015"	-	-	63.77	61.00	58.22	55.45
61352	-	.5000	1/2"	12.700	1/2"	3"	1"	.030"	-	-	63.77	61.00	58.22	55.45
61354	-	.5000	1/2"	12.700	1/2"	3"	1"	.060"	-	-	63.77	61.00	58.22	55.45
61356	-	.5000	1/2"	12.700	1/2"	3"	1"	.125"	-	-	63.77	61.00	58.22	55.45
61358	-	.5000	1/2"	12.700	1/2"	3"	1"	BALL	-	-	66.32	63.44	60.55	57.67
62535	62537	.5000	1/2"	12.700	1/2"	3"	1-1/4"	-	-	-	54.58	52.21	49.83	47.46
27751	27750	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.010"	-	-	66.32	63.44	60.55	57.67
61360	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.015"	-	-	66.32	63.44	60.55	57.67
27761	27760	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.020"	-	-	66.32	63.44	60.55	57.67
27763	27762	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.030"	-	-	66.32	63.44	60.55	57.67
61362	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.040"	-	-	66.32	63.44	60.55	57.67
61364	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.050"	-	-	66.32	63.44	60.55	57.67
27767	27764	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.060"	-	-	66.32	63.44	60.55	57.67
61366	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.078"	-	-	66.32	63.44	60.55	57.67
63398	63399	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.090"	-	-	66.32	63.44	60.55	57.67

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MATERIAL HARDNESS (Rc)

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continued →

Series VRX (continued)

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

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	1/2"	Metric										
61368	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.094"	-	-	66.32	63.44	60.55	57.67
61370	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.100"	-	-	66.32	63.44	60.55	57.67
27769	27768	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.120"	-	-	66.32	63.44	60.55	57.67
61372	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.125"	-	-	66.32	63.44	60.55	57.67
28761	28760	.5000	1/2"	12.700	1/2"	3"	1-1/4"	BALL	-	-	66.32	63.44	60.55	57.67
28771	28770	.5000	1/2"	12.700	1/2"	4"	5/8"	BALL	-	-	78.37	74.97	71.56	68.15
61374	-	.5000	1/2"	12.700	1/2"	4"	1-1/2"	-	-	-	73.85	70.64	67.43	64.22
63401	63400	.5000	1/2"	12.700	1/2"	4"	1-1/2"	.010"	-	-	78.37	74.97	71.56	68.15
61376	-	.5000	1/2"	12.700	1/2"	4"	1-1/2"	.015"	-	-	78.37	74.97	71.56	68.15
63411	63410	.5000	1/2"	12.700	1/2"	4"	1-1/2"	.030"	-	-	78.37	74.97	71.56	68.15
63421	63420	.5000	1/2"	12.700	1/2"	4"	1-1/2"	.060"	-	-	78.37	74.97	71.56	68.15
63424	-	.5000	1/2"	12.700	1/2"	4"	1-1/2"	.125"	-	-	78.37	74.97	71.56	68.15
61378	-	.5000	1/2"	12.700	1/2"	4"	1-1/2"	BALL	-	-	78.37	74.97	71.56	68.15
61380	-	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.015"	-	-	78.37	74.97	71.56	68.15
61382	-	.5000	1/2"	12.700	1/2"	4"	1-3/4"	.015"	-	-	78.37	74.97	71.56	68.15
62565	62567	.5000	1/2"	12.700	1/2"	4"	2"	-	-	-	73.85	70.64	67.43	64.22
63431	63430	.5000	1/2"	12.700	1/2"	4"	2"	.010"	-	-	78.37	74.97	71.56	68.15
61384	-	.5000	1/2"	12.700	1/2"	4"	2"	.015"	-	-	78.37	74.97	71.56	68.15
63441	63440	.5000	1/2"	12.700	1/2"	4"	2"	.030"	-	-	78.37	74.97	71.56	68.15
63451	63450	.5000	1/2"	12.700	1/2"	4"	2"	.060"	-	-	78.37	74.97	71.56	68.15
61386	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.015"	-	-	78.37	74.97	71.56	68.15
63241	63240	.5000	1/2"	12.700	1/2"	6"	2"	.020"	-	-	110.84	106.02	101.20	96.38
61388	-	.5000	1/2"	12.700	1/2"	6"	2-1/2"	.015"	-	-	110.84	106.02	101.20	96.38
61390	-	.5000	1/2"	12.700	1/2"	6"	2-1/2"	.030"	-	-	110.84	106.02	101.20	96.38
61392	-	.5000	1/2"	12.700	1/2"	6"	3-1/4"	.030"	-	-	110.84	106.02	101.20	96.38
61394	-	.5000	1/2"	12.700	1/2"	4"	5/8"	.015"	1-1/2"	.480"	89.46	85.57	81.68	77.79
61396	-	.5000	1/2"	12.700	1/2"	4"	5/8"	.015"	2-1/4"	.480"	89.46	85.57	81.68	77.79
63231	63230	.5000	1/2"	12.700	1/2"	4"	5/8"	.020"	2-1/4"	.480"	89.46	85.57	81.68	77.79
61398	-	.5000	1/2"	12.700	1/2"	6"	5/8"	.015"	3-3/8"	.480"	121.92	116.62	111.32	106.02
61400	-	.5000	1/2"	12.700	1/2"	6"	5/8"	.015"	4-1/8"	.480"	121.92	116.62	111.32	106.02
27766	27765	.5512		14.000	14.0	75	19	0.50	-	-	97.85	93.60	89.34	85.09
28781	28780	.5512		14.000	14.0	75	19	BALL	-	-	97.85	93.60	89.34	85.09
27771	27770	.5512		14.000	14.0	88	32	0.50	-	-	100.57	96.20	91.82	87.45
28786	28785	.5512		14.000	14.0	88	32	BALL	-	-	100.57	96.20	91.82	87.45
63261	63260	.5512		14.000	14.0	150	50	0.50	-	-	145.16	138.85	132.54	126.23
63251	-	.5512		14.000	14.0	150	19	0.50	57	13.50	155.86	149.08	142.31	135.53
62625	62627	.5625	9/16"	14.288	9/16"	3-1/2"	1-1/4"	-	-	-	90.76	86.81	82.87	78.92
61402	-	.6250	5/8"	15.875	5/8"	3"	3/4"	-	-	-	97.84	93.59	89.33	85.08
63461	63460	.6250	5/8"	15.875	5/8"	3"	3/4"	.010"	-	-	102.73	98.26	93.80	89.33
61404	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.015"	-	-	102.73	98.26	93.80	89.33
27781	27780	.6250	5/8"	15.875	5/8"	3"	3/4"	.025"	-	-	102.73	98.26	93.80	89.33
61406	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.060"	-	-	102.73	98.26	93.80	89.33
28796	28795	.6250	5/8"	15.875	5/8"	3"	3/4"	BALL	-	-	102.73	98.26	93.80	89.33
62655	62657	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	-	-	-	100.71	96.33	91.95	87.57
27791	27790	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.010"	-	-	105.58	100.99	96.40	91.81
61408	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.015"	-	-	105.58	100.99	96.40	91.81
61410	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.020"	-	-	105.58	100.99	96.40	91.81
27801	27800	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.025"	-	-	105.58	100.99	96.40	91.81
61412	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.030"	-	-	105.58	100.99	96.40	91.81
61414	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.040"	-	-	105.58	100.99	96.40	91.81
27803	27802	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.060"	-	-	105.58	100.99	96.40	91.81
61416	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.078"	-	-	105.58	100.99	96.40	91.81
61418	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.094"	-	-	105.58	100.99	96.40	91.81
27805	27804	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.120"	-	-	105.58	100.99	96.40	91.81
61420	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.125"	-	-	105.58	100.99	96.40	91.81
28801	28800	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	BALL	-	-	105.58	100.99	96.40	91.81

MATERIAL HARDNESS (Rc)

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EDP#	<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			
												(plain)	(weldon)	Decimal
61422	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	-	-	-	107.55	102.87	98.20	93.52
63501	63500	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.010"	-	-	114.77	109.78	104.79	99.80
61424	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.015"	-	-	114.77	109.78	104.79	99.80
63511	63510	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.030"	-	-	114.77	109.78	104.79	99.80
63521	63520	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.060"	-	-	114.77	109.78	104.79	99.80
61426	-	.6250	5/8"	15.875	5/8"	4"	1-5/8"	-	-	-	107.55	102.87	98.20	93.52
61428	-	.6250	5/8"	15.875	5/8"	4"	1-5/8"	.015"	-	-	114.77	109.78	104.79	99.80
61430	-	.6250	5/8"	15.875	5/8"	4"	1-5/8"	.030"	-	-	114.77	109.78	104.79	99.80
61432	-	.6250	5/8"	15.875	5/8"	4"	1-5/8"	.060"	-	-	114.77	109.78	104.79	99.80
62675	62677	.6250	5/8"	15.875	5/8"	4"	1-3/4"	-	-	-	107.55	102.87	98.20	93.52
63531	63530	.6250	5/8"	15.875	5/8"	4"	1-3/4"	.010"	-	-	114.77	109.78	104.79	99.80
63541	63540	.6250	5/8"	15.875	5/8"	4"	1-3/4"	.030"	-	-	114.77	109.78	104.79	99.80
63551	63550	.6250	5/8"	15.875	5/8"	4"	1-3/4"	.060"	-	-	114.77	109.78	104.79	99.80
63281	63280	.6250	5/8"	15.875	5/8"	6"	2"	.025"	-	-	157.99	151.12	144.25	137.38
63283	-	.6250	5/8"	15.875	5/8"	6"	2"	.090"	-	-	157.99	151.12	144.25	137.38
63285	-	.6250	5/8"	15.875	5/8"	6"	2"	.125"	-	-	157.99	151.12	144.25	137.38
28806	28805	.6250	5/8"	15.875	5/8"	6"	2"	BALL	-	-	157.99	151.12	144.25	137.38
61434	-	.6250	5/8"	15.875	5/8"	6"	2-1/2"	.030"	-	-	157.99	151.12	144.25	137.38
61436	-	.6250	5/8"	15.875	5/8"	6"	3-1/4"	.030"	-	-	157.99	151.12	144.25	137.38
61438	-	.6250	5/8"	15.875	5/8"	4"	3/4"	.030"	1-5/8"	.600"	125.87	120.40	114.92	109.45
61440	-	.6250	5/8"	15.875	5/8"	6"	3/4"	.030"	2-3/8"	.600"	169.10	161.74	154.39	147.04
63271	63270	.6250	5/8"	15.875	5/8"	6"	3/4"	.025"	3-1/4"	.600"	169.10	161.74	154.39	147.04
61442	-	.6250	5/8"	15.875	5/8"	6"	3/4"	.030"	4-1/8"	.600"	169.10	161.74	154.39	147.04
61444	-	.6299		16.000	16.0	75	19	-	-	-	102.26	97.81	93.37	88.92
27809	-	.6299		16.000	16.0	75	19	0.30	-	-	107.24	102.58	97.91	93.25
27811	27810	.6299		16.000	16.0	75	19	0.50	-	-	107.24	102.58	97.91	93.25
61446	-	.6299		16.000	16.0	75	19	1.00	-	-	107.24	102.58	97.91	93.25
28811	28810	.6299		16.000	16.0	75	19	BALL	-	-	107.24	102.58	97.91	93.25
62715	62717	.6299		16.000	16.0	88	32	-	-	-	105.05	100.49	95.92	91.35
27819	27818	.6299		16.000	16.0	88	32	0.30	-	-	110.17	105.38	100.59	95.80
27821	27820	.6299		16.000	16.0	88	32	0.50	-	-	110.17	105.38	100.59	95.80
61448	-	.6299		16.000	16.0	88	32	0.75	-	-	110.17	105.38	100.59	95.80
27823	27822	.6299		16.000	16.0	88	32	1.00	-	-	110.17	105.38	100.59	95.80
61450	-	.6299		16.000	16.0	88	32	1.50	-	-	110.17	105.38	100.59	95.80
27825	27824	.6299		16.000	16.0	88	32	2.00	-	-	110.17	105.38	100.59	95.80
61452	-	.6299		16.000	16.0	88	32	3.00	-	-	110.17	105.38	100.59	95.80
28821	28820	.6299		16.000	16.0	88	32	BALL	-	-	110.17	105.38	100.59	95.80
63581	63580	.6299		16.000	16.0	100	38	0.30	-	-	117.15	112.06	106.96	101.87
61454	-	.6299		16.000	16.0	100	38	0.50	-	-	117.15	112.06	106.96	101.87
61456	-	.6299		16.000	16.0	100	42	0.50	-	-	117.15	112.06	106.96	101.87
63291	63290	.6299		16.000	16.0	150	19	0.50	82	15.25	169.10	161.74	154.39	147.04
27831	-	.7087		18.000	18.0	75	22	0.80	-	-	154.69	147.96	141.24	134.51
28831	-	.7087		18.000	18.0	75	22	BALL	-	-	154.69	147.96	141.24	134.51
27836	27835	.7087		18.000	18.0	100	38	0.80	-	-	158.17	151.29	144.42	137.54
28836	28835	.7087		18.000	18.0	100	38	BALL	-	-	158.17	151.29	144.42	137.54
63301	-	.7087		18.000	18.0	150	25	0.80	82	17.25	246.48	235.76	225.05	214.33
61458	-	.7500	3/4"	19.050	3/4"	3"	7/8"	-	-	-	140.67	134.55	128.44	122.32
27841	27840	.7500	3/4"	19.050	3/4"	3"	7/8"	.030"	-	-	148.19	141.75	135.30	128.86
61460	-	.7500	3/4"	19.050	3/4"	3"	7/8"	.060"	-	-	148.19	141.75	135.30	128.86
28841	28840	.7500	3/4"	19.050	3/4"	3"	7/8"	BALL	-	-	148.19	141.75	135.30	128.86
61462	-	.7500	3/4"	19.050	3/4"	4"	1-1/4"	-	-	-	143.75	137.50	131.25	125.00
61464	-	.7500	3/4"	19.050	3/4"	4"	1-1/4"	.030"	-	-	151.41	144.83	138.24	131.66
62775	62777	.7500	3/4"	19.050	3/4"	4"	1-1/2"	-	-	-	143.75	137.50	131.25	125.00
27851	27850	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.015"	-	-	151.41	144.83	138.24	131.66
27861	27860	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.030"	-	-	151.41	144.83	138.24	131.66
27865	27864	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.060"	-	-	151.41	144.83	138.24	131.66
27867	27866	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.120"	-	-	151.41	144.83	138.24	131.66
28861	28860	.7500	3/4"	19.050	3/4"	4"	1-1/2"	BALL	-	-	151.41	144.83	138.24	131.66

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MATERIAL HARDNESS (Rc)

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continued →



Series VRX (continued)

.7500" - .8661"  
(19.050mm - 22.000mm)

EDP#		d1 †			d2	l1	l2	r	l3	d3	1-11	12-24	25-49	50-100
(plain)	(weldon)	Decimal	Diameter	Metric	Shank Diameter	Overall Length	Flute Length	Corner Radius	Reach Length	Neck Diameter				
61466	-	.7500	3/4"	19.050	3/4"	4"	1-5/8"	-	-	-	138.22	132.21	126.20	120.19
61468	-	.7500	3/4"	19.050	3/4"	4"	1-5/8"	.015"	-	-	151.41	144.83	138.24	131.66
61470	-	.7500	3/4"	19.050	3/4"	4"	1-5/8"	.030"	-	-	151.41	144.83	138.24	131.66
61472	-	.7500	3/4"	19.050	3/4"	4"	1-5/8"	.060"	-	-	151.41	144.83	138.24	131.66
61474	-	.7500	3/4"	19.050	3/4"	4"	1-5/8"	BALL	-	-	151.41	144.83	138.24	131.66
62785	62787	.7500	3/4"	19.050	3/4"	4"	1-3/4"	-	-	-	143.75	137.50	131.25	125.00
63601	63600	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.015"	-	-	151.41	144.83	138.24	131.66
27869	27868	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.030"	-	-	151.41	144.83	138.24	131.66
63611	63610	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.060"	-	-	151.41	144.83	138.24	131.66
61476	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.094"	-	-	151.41	144.83	138.24	131.66
63621	63620	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.120"	-	-	151.41	144.83	138.24	131.66
61478	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.190"	-	-	151.41	144.83	138.24	131.66
61480	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	BALL	-	-	151.41	144.83	138.24	131.66
62795	62797	.7500	3/4"	19.050	3/4"	5"	2"	-	-	-	192.94	184.55	176.16	167.77
63631	63630	.7500	3/4"	19.050	3/4"	5"	2"	.015"	-	-	210.01	200.88	191.75	182.62
63311	63310	.7500	3/4"	19.050	3/4"	5"	2"	.030"	-	-	210.01	200.88	191.75	182.62
63641	63640	.7500	3/4"	19.050	3/4"	5"	2"	.060"	-	-	210.01	200.88	191.75	182.62
61482	-	.7500	3/4"	19.050	3/4"	5"	2"	.094"	-	-	210.01	200.88	191.75	182.62
61484	-	.7500	3/4"	19.050	3/4"	5"	2"	.125"	-	-	210.01	200.88	191.75	182.62
28866	28865	.7500	3/4"	19.050	3/4"	5"	2"	BALL	-	-	210.01	200.88	191.75	182.62
61486	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	-	-	-	192.94	184.55	176.16	167.77
61488	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.030"	-	-	210.01	200.88	191.75	182.62
62805	62807	.7500	3/4"	19.050	3/4"	6"	3"	-	-	-	225.79	215.97	206.16	196.34
63651	63650	.7500	3/4"	19.050	3/4"	6"	3"	.015"	-	-	249.47	238.62	227.78	216.93
63661	63660	.7500	3/4"	19.050	3/4"	6"	3"	.030"	-	-	249.47	238.62	227.78	216.93
63671	63670	.7500	3/4"	19.050	3/4"	6"	3"	.060"	-	-	249.47	238.62	227.78	216.93
61490	-	.7500	3/4"	19.050	3/4"	6"	3-1/4"	-	-	-	225.79	215.97	206.16	196.34
61492	-	.7500	3/4"	19.050	3/4"	6"	3-1/4"	.030"	-	-	249.47	238.62	227.78	216.93
61494	-	.7500	3/4"	19.050	3/4"	7"	4-1/4"	-	-	-	283.58	271.25	258.92	246.59
61496	-	.7500	3/4"	19.050	3/4"	7"	4-1/4"	.030"	-	-	314.64	300.96	287.28	273.60
63321	63320	.7500	3/4"	19.050	3/4"	6"	1"	.030"	3-1/4"	.730"	260.66	249.33	237.99	226.66
63323	-	.7500	3/4"	19.050	3/4"	6"	1"	.060"	3-1/4"	.730"	260.66	249.33	237.99	226.66
63325	-	.7500	3/4"	19.050	3/4"	6"	1"	.090"	3-1/4"	.730"	260.66	249.33	237.99	226.66
63327	-	.7500	3/4"	19.050	3/4"	6"	1"	.125"	3-1/4"	.730"	260.66	249.33	237.99	226.66
63329	-	.7500	3/4"	19.050	3/4"	6"	1"	.190"	3-1/4"	.730"	260.66	249.33	237.99	226.66
61498	-	.7874		20.000	20.0	75	22	-	-	-	189.92	181.67	173.41	165.15
61500	-	.7874		20.000	20.0	75	22	0.50	-	-	209.56	200.45	191.34	182.23
27871	27870	.7874		20.000	20.0	75	22	1.00	-	-	209.56	200.45	191.34	182.23
28871	28870	.7874		20.000	20.0	75	22	BALL	-	-	209.56	200.45	191.34	182.23
62825	62827	.7874		20.000	20.0	100	38	-	-	-	194.21	185.77	177.32	168.88
27879	27878	.7874		20.000	20.0	100	38	0.50	-	-	214.29	204.97	195.66	186.34
61502	-	.7874		20.000	20.0	100	38	0.75	-	-	214.29	204.97	195.66	186.34
27881	27880	.7874		20.000	20.0	100	38	1.00	-	-	214.29	204.97	195.66	186.34
27891	27890	.7874		20.000	20.0	100	38	1.50	-	-	214.29	204.97	195.66	186.34
61504	-	.7874		20.000	20.0	100	38	3.00	-	-	214.29	204.97	195.66	186.34
28881	28880	.7874		20.000	20.0	100	38	BALL	-	-	214.29	204.97	195.66	186.34
61506	-	.7874		20.000	20.0	100	42	0.50	-	-	214.29	204.97	195.66	186.34
61508	-	.7874		20.000	20.0	125	52	0.50	-	-	237.57	227.24	216.91	206.58
63331	63330	.7874		20.000	20.0	150	25	1.00	82	19.30	274.52	262.58	250.65	238.71
27911	-	.8661		22.000	22.0	100	38	1.00	-	-	235.39	225.16	214.92	204.69

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MATERIAL HARDNESS (Rc)

	EDP#		$d_1$ † Diameter		$d_2$ 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	Metric											
NEW	61510	-	.9843	25.000	25.0	100	26	-	-	-	221.79	212.15	202.50	192.86	
	61512	-	.9843	25.000	25.0	100	26	0.50	-	-	245.59	234.92	224.24	213.56	
	62855	62857	.9843	25.000	25.0	100	38	-	-	-	221.79	212.15	202.50	192.86	
	61514	-	.9843	25.000	25.0	100	38	0.50	-	-	245.59	234.92	224.24	213.56	
	27941	27940	.9843	25.000	25.0	100	38	1.00	-	-	245.59	234.92	224.24	213.56	
	27951	-	.9843	25.000	25.0	100	38	1.50	-	-	245.59	234.92	224.24	213.56	
NEW	61516	-	.9843	25.000	25.0	100	38	3.00	-	-	245.59	234.92	224.24	213.56	
	28901	28900	.9843	25.000	25.0	100	38	BALL	-	-	245.59	234.92	224.24	213.56	
	61518	-	.9843	25.000	25.0	100	42	-	-	-	221.79	212.15	202.50	192.86	
NEW	61520	-	.9843	25.000	25.0	100	42	0.50	-	-	245.59	234.92	224.24	213.56	
	61522	-	.9843	25.000	25.0	125	50	0.50	-	-	306.61	293.28	279.95	266.62	
	63351	63350	.9843	25.000	25.0	125	50	1.00	-	-	306.61	293.28	279.95	266.62	
	63361	63360	.9843	25.000	25.0	150	32	1.00	82	24.40	411.17	393.29	375.42	357.54	
	61524	-	1.000	1"	25.400	1"	4"	1"	-	-	214.75	205.41	196.08	186.74	
	27959	27958	1.000	1"	25.400	1"	4"	1"	.015"	-	258.50	247.26	236.02	224.78	
	27961	27960	1.000	1"	25.400	1"	4"	1"	.035"	-	258.50	247.26	236.02	224.78	
	-	27962	1.000	1"	25.400	1"	4"	1"	.060"	-	258.50	247.26	236.02	224.78	
	28911	28910	1.000	1"	25.400	1"	4"	1"	BALL	-	258.50	247.26	236.02	224.78	
	62885	62887	1.000	1"	25.400	1"	4"	1-1/2"	-	-	214.75	205.41	196.08	186.74	
	27967	27966	1.000	1"	25.400	1"	4"	1-1/2"	.015"	-	258.50	247.26	236.02	224.78	
	61526	-	1.000	1"	25.400	1"	4"	1-1/2"	.025"	-	258.50	247.26	236.02	224.78	
	27971	27970	1.000	1"	25.400	1"	4"	1-1/2"	.035"	-	258.50	247.26	236.02	224.78	
	27981	27980	1.000	1"	25.400	1"	4"	1-1/2"	.060"	-	258.50	247.26	236.02	224.78	
	27991	-	1.000	1"	25.400	1"	4"	1-1/2"	.090"	-	258.50	247.26	236.02	224.78	
	61528	-	1.000	1"	25.400	1"	4"	1-1/2"	.125"	-	258.50	247.26	236.02	224.78	
	61530	-	1.000	1"	25.400	1"	4"	1-1/2"	.190"	-	258.50	247.26	236.02	224.78	
	61532	-	1.000	1"	25.400	1"	4"	1-1/2"	.250"	-	258.50	247.26	236.02	224.78	
	28916	28915	1.000	1"	25.400	1"	4"	1-1/2"	BALL	-	258.50	247.26	236.02	224.78	
	61534	-	1.000	1"	25.400	1"	4"	1-5/8"	.030"	-	258.50	247.26	236.02	224.78	
	62895	62897	1.000	1"	25.400	1"	4"	1-3/4"	-	-	214.75	205.41	196.08	186.74	
	28001	28000	1.000	1"	25.400	1"	4"	1-3/4"	.015"	-	258.50	247.26	236.02	224.78	
	61536	-	1.000	1"	25.400	1"	4"	1-3/4"	.030"	-	258.50	247.26	236.02	224.78	
	28011	28012	1.000	1"	25.400	1"	4"	1-3/4"	.060"	-	258.50	247.26	236.02	224.78	
	28021	-	1.000	1"	25.400	1"	4"	1-3/4"	.090"	-	258.50	247.26	236.02	224.78	
	61538	-	1.000	1"	25.400	1"	4"	1-3/4"	.125"	-	258.50	247.26	236.02	224.78	
NEW	61540	-	1.000	1"	25.400	1"	4"	1-3/4"	.190"	-	258.50	247.26	236.02	224.78	
NEW	61542	-	1.000	1"	25.400	1"	4"	1-3/4"	.250"	-	258.50	247.26	236.02	224.78	
	62905	62907	1.000	1"	25.400	1"	5"	2"	-	-	287.47	274.97	262.47	249.97	
	63369	63368	1.000	1"	25.400	1"	5"	2"	.015"	-	318.04	304.22	290.39	276.56	
	63371	63370	1.000	1"	25.400	1"	5"	2"	.035"	-	318.04	304.22	290.39	276.56	
	63373	63372	1.000	1"	25.400	1"	5"	2"	.060"	-	318.04	304.22	290.39	276.56	
	63375	63374	1.000	1"	25.400	1"	5"	2"	.090"	-	318.04	304.22	290.39	276.56	
	61544	-	1.000	1"	25.400	1"	5"	2"	.125"	-	318.04	304.22	290.39	276.56	
	61546	-	1.000	1"	25.400	1"	5"	2"	.250"	-	318.04	304.22	290.39	276.56	
	28931	28930	1.000	1"	25.400	1"	5"	2"	BALL	-	318.04	304.22	290.39	276.56	
	61548	-	1.000	1"	25.400	1"	5"	2-1/2"	-	-	287.47	274.97	262.47	249.97	
	61550	-	1.000	1"	25.400	1"	5"	2-1/2"	.030"	-	318.04	304.22	290.39	276.56	
	62915	62917	1.000	1"	25.400	1"	6"	3"	-	-	374.44	358.16	341.88	325.60	
	61552	-	1.000	1"	25.400	1"	6"	3-1/4"	.030"	-	414.81	396.77	378.74	360.70	
	61554	-	1.000	1"	25.400	1"	7"	4-1/4"	.030"	-	506.18	484.18	462.17	440.16	
	61556	-	1.000	1"	25.400	1"	7"	4-1/4"	.060"	-	506.18	484.18	462.17	440.16	
NEW	61558	-	1.000	1"	25.400	1"	6"	1-1/4"	.030"	2-5/8"	.980"	429.63	410.95	392.27	373.59
	63381	63380	1.000	1"	25.400	1"	6"	1-1/4"	.035"	3-1/4"	.980"	429.63	410.95	392.27	373.59
NEW	61560	-	1.000	1"	25.400	1"	6"	1-1/4"	.060"	3-1/4"	.980"	429.63	410.95	392.27	373.59
	61562	-	1.000	1"	25.400	1"	7"	1-1/4"	.030"	4-1/4"	.980"	521.00	498.34	475.69	453.04

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MATERIAL HARDNESS (Rc)

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