

Series VRX

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

NEW
ITEMS



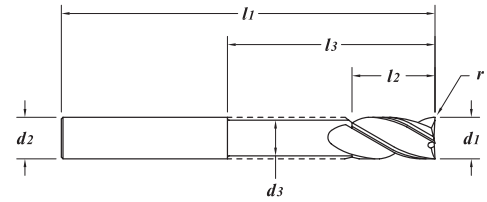
TOLERANCES	
d1	+0.000" - .002" (+.000mm - .050mm)
d2	h6
r	+0.001" - .001" (+.025 - .025mm)

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
The standard in high performance 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



MATERIAL HARDNESS (Rc)

70

35

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EDP#	d1 †		d2	l1	l2	r	l3	d3	1-11	12-24	25-49	50-100	
	(plain)	(weldon)											Decimal
NEW 61084	-		.0591	1.500	3.0	38	3.0	-	-	13.81	13.21	13.61	12.01
NEW 61086	-		.0591	1.500	3.0	38	3.0	0.20	-	15.66	14.98	14.30	13.62
NEW 61088	-		.0591	1.500	3.0	38	3.0	BALL	-	15.66	14.98	14.30	13.62
NEW 61090	-		.0591	1.500	3.0	38	6.0	-	-	13.81	13.21	13.61	12.01
NEW 61092	-		.0591	1.500	3.0	38	6.0	0.20	-	15.66	14.98	14.30	13.62
NEW 61094	-		.0591	1.500	3.0	38	6.0	BALL	-	15.66	14.98	14.30	13.62
NEW 61096	-		.0625	1/16"	1.588	1/8"	1-1/2"	1/8"	-	13.01	12.44	11.88	11.31
NEW 61098	-		.0625	1/16"	1.588	1/8"	1-1/2"	1/8"	.010"	14.75	14.11	13.47	12.83
NEW 61100	-		.0625	1/16"	1.588	1/8"	1-1/2"	1/8"	BALL	14.75	14.11	13.47	12.83
NEW 61102	-		.0625	1/16"	1.588	1/8"	1-1/2"	1/4"	-	13.01	12.44	11.88	11.31
NEW 61104	-		.0625	1/16"	1.588	1/8"	1-1/2"	1/4"	.010"	14.75	14.11	13.47	12.83
NEW 61106	-		.0625	1/16"	1.588	1/8"	1-1/2"	1/4"	BALL	14.75	14.11	13.47	12.83
NEW 61108	-		.0787	2.000	3.0	38	4.0	-	-	13.01	12.44	11.88	11.31
NEW 61110	-		.0787	2.000	3.0	38	4.0	0.20	-	14.75	14.11	13.47	12.83
NEW 61112	-		.0787	2.000	3.0	38	4.0	BALL	-	14.75	14.11	13.47	12.83
NEW 61114	-		.0787	2.000	3.0	38	8.0	-	-	13.01	12.44	11.88	11.31
NEW 61116	-		.0787	2.000	3.0	38	8.0	0.20	-	14.75	14.11	13.47	12.83
NEW 61118	-		.0787	2.000	3.0	38	8.0	BALL	-	14.75	14.11	13.47	12.83
NEW 61120	-		.0938	3/32"	2.383	1/8"	1-1/2"	3/16"	-	12.43	11.89	11.35	10.81
NEW 61122	-		.0938	3/32"	2.383	1/8"	1-1/2"	3/16"	.010"	14.21	13.59	12.97	12.36
NEW 61124	-		.0938	3/32"	2.383	1/8"	1-1/2"	3/16"	BALL	14.21	13.59	12.97	12.36
NEW 61126	-		.0938	3/32"	2.383	1/8"	1-1/2"	3/8"	-	12.43	11.89	11.35	10.81
NEW 61128	-		.0938	3/32"	2.383	1/8"	1-1/2"	3/8"	.010"	14.21	13.59	12.97	12.36
NEW 61130	-		.0938	3/32"	2.383	1/8"	1-1/2"	3/8"	BALL	14.21	13.59	12.97	12.36
61877	-		.1181	3.000	3.0	50	8	-	-	11.67	11.17	10.66	10.15
27420	-		.1181	3.000	3.0	50	8	0.20	-	13.13	12.56	11.99	11.42
NEW 61132	-		.1181	3.000	3.0	50	8	0.30	-	13.13	12.56	11.99	11.42
27425	-		.1181	3.000	3.0	50	8	0.50	-	13.13	12.56	11.99	11.42
NEW 61134	-		.1181	3.000	3.0	50	8	BALL	-	13.13	12.56	11.99	11.42
61887	-		.1181	3.000	3.0	50	12	-	-	11.67	11.17	10.66	10.15
27430	-		.1181	3.000	3.0	50	12	0.20	-	13.13	12.56	11.99	11.42
NEW 61136	-		.1181	3.000	3.0	50	12	0.30	-	13.13	12.56	11.99	11.42
27435	-		.1181	3.000	3.0	50	12	0.50	-	13.13	12.56	11.99	11.42
NEW 61138	-		.1181	3.000	3.0	50	12	BALL	-	13.13	12.56	11.99	11.42

	EDP#		d_1 †		d_2	l_1	l_2	r	l_3	d_3	1-11	12-24	25-49	50-100	
	(plain)	(weldon)	Decimal	Diameter											Metric
			.1250	1/8"	3.175	1/8"	1-1/2"	1/4"	-	-	-	11.67	11.17	10.66	10.15
			.1250	1/8"	3.175	1/8"	1-1/2"	1/4"	.010"	-	-	13.13	12.56	11.99	11.42
NEW			.1250	1/8"	3.175	1/8"	1-1/2"	1/4"	.015"	-	-	13.13	12.56	11.99	11.42
NEW			.1250	1/8"	3.175	1/8"	1-1/2"	1/4"	.030"	-	-	13.13	12.56	11.99	11.42
NEW			.1250	1/8"	3.175	1/8"	1-1/2"	1/4"	BALL	-	-	13.13	12.56	11.99	11.42
NEW			.1250	1/8"	3.175	1/8"	1-1/2"	3/8"	-	-	-	11.67	11.17	10.66	10.15
NEW			.1250	1/8"	3.175	1/8"	1-1/2"	3/8"	.010"	-	-	13.13	12.56	11.99	11.42
NEW			.1250	1/8"	3.175	1/8"	1-1/2"	3/8"	.015"	-	-	13.13	12.56	11.99	11.42
NEW			.1250	1/8"	3.175	1/8"	1-1/2"	3/8"	.030"	-	-	13.13	12.56	11.99	11.42
NEW			.1250	1/8"	3.175	1/8"	1-1/2"	3/8"	BALL	-	-	13.13	12.56	11.99	11.42
			.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	-	-	-	11.67	11.17	10.66	10.15
			.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	.010"	-	-	13.13	12.56	11.99	11.42
NEW			.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	.015"	-	-	13.13	12.56	11.99	11.42
			.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	.020"	-	-	13.13	12.56	11.99	11.42
NEW			.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	.030"	-	-	13.13	12.56	11.99	11.42
NEW			.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	BALL	-	-	13.13	12.56	11.99	11.42
NEW			.1562	5/32"	3.967	3/16"	2"	5/16"	-	-	-	15.39	14.72	14.05	13.38
			.1562	5/32"	3.967	3/16"	2"	5/16"	.010"	-	-	18.10	17.31	16.53	15.74
NEW			.1562	5/32"	3.967	3/16"	2"	5/16"	.015"	-	-	18.10	17.31	16.53	15.74
NEW			.1562	5/32"	3.967	3/16"	2"	5/16"	.030"	-	-	18.10	17.31	16.53	15.74
NEW			.1562	5/32"	3.967	3/16"	2"	5/16"	BALL	-	-	18.10	17.31	16.53	15.74
NEW			.1562	5/32"	3.967	3/16"	2"	1/2"	-	-	-	15.39	14.72	14.05	13.38
			.1562	5/32"	3.967	3/16"	2"	1/2"	.010"	-	-	18.10	17.31	16.53	15.74
NEW			.1562	5/32"	3.967	3/16"	2"	1/2"	.015"	-	-	18.10	17.31	16.53	15.74
NEW			.1562	5/32"	3.967	3/16"	2"	1/2"	.030"	-	-	18.10	17.31	16.53	15.74
NEW			.1562	5/32"	3.967	3/16"	2"	1/2"	BALL	-	-	18.10	17.31	16.53	15.74
NEW			.1575		4.000	6.0	50	8	-	-	-	21.92	20.97	20.01	19.06
			.1575		4.000	6.0	50	8	0.30	-	-	22.25	21.29	20.32	19.35
NEW			.1575		4.000	6.0	50	8	0.50	-	-	22.25	21.29	20.32	19.35
			.1575		4.000	6.0	50	8	BALL	-	-	22.25	21.29	20.32	19.35
			.1575		4.000	6.0	50	12	-	-	-	21.92	20.97	20.01	19.06
			.1575		4.000	6.0	50	12	0.30	-	-	22.25	21.29	20.32	19.35
			.1575		4.000	6.0	50	12	0.50	-	-	22.25	21.29	20.32	19.35
			.1575		4.000	6.0	50	12	BALL	-	-	22.25	21.29	20.32	19.35
NEW			.1575		4.000	6.0	65	19	-	-	-	24.30	23.24	22.19	21.13
NEW			.1575		4.000	6.0	65	19	0.30	-	-	24.67	23.60	22.52	21.45
			.1875	3/16"	4.763	3/16"	2"	5/16"	-	-	-	14.72	14.08	13.44	12.80
			.1875	3/16"	4.763	3/16"	2"	5/16"	.010"	-	-	16.49	15.77	15.06	14.34
NEW			.1875	3/16"	4.763	3/16"	2"	5/16"	.015"	-	-	16.49	15.77	15.06	14.34
NEW			.1875	3/16"	4.763	3/16"	2"	5/16"	.020"	-	-	16.49	15.77	15.06	14.34
			.1875	3/16"	4.763	3/16"	2"	5/16"	BALL	-	-	16.49	15.77	15.06	14.34
NEW			.1875	3/16"	4.763	3/16"	2"	7/16"	-	-	-	14.72	14.08	13.44	12.80
NEW			.1875	3/16"	4.763	3/16"	2"	7/16"	.010"	-	-	16.49	15.77	15.06	14.34
NEW			.1875	3/16"	4.763	3/16"	2"	7/16"	.015"	-	-	16.49	15.77	15.06	14.34
			.1875	3/16"	4.763	3/16"	2"	9/16"	-	-	-	14.72	14.08	13.44	12.80
			.1875	3/16"	4.763	3/16"	2"	9/16"	.010"	-	-	16.49	15.77	15.06	14.34
NEW			.1875	3/16"	4.763	3/16"	2"	9/16"	.015"	-	-	16.49	15.77	15.06	14.34
			.1875	3/16"	4.763	3/16"	2"	9/16"	.020"	-	-	16.49	15.77	15.06	14.34
NEW			.1875	3/16"	4.763	3/16"	2"	9/16"	.030"	-	-	16.49	15.77	15.06	14.34
			.1875	3/16"	4.763	3/16"	2"	9/16"	BALL	-	-	16.49	15.77	15.06	14.34
NEW			.1875	3/16"	4.763	3/16"	3"	1"	.010"	-	-	28.22	26.99	25.77	24.54
NEW			.1875	3/16"	4.763	3/16"	3"	1-1/4"	.010"	-	-	28.22	26.99	25.77	24.54
			.1875	3/16"	4.763	3/16"	4"	5/16"	.010"	-	-	30.72	29.38	28.05	26.71
NEW			.1969		5.000	6.0	50	10	-	-	-	21.47	20.54	19.60	18.67
			.1969		5.000	6.0	50	10	0.30	-	-	21.80	20.86	19.91	18.96
NEW			.1969		5.000	6.0	50	10	0.50	-	-	21.80	20.86	19.91	18.96
			.1969		5.000	6.0	50	10	BALL	-	-	21.80	20.86	19.91	18.96

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MATERIAL HARDNESS (Rc)

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continued →

Series VRX (continued)

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

EDP#	<i>d1</i> † Diameter	<i>d2</i> Shank Diameter	<i>l1</i> Overall Length	<i>l2</i> Flute Length	<i>r</i> Corner Radius	<i>l3</i> Reach Length	<i>d3</i> Neck Diameter							
								(plain)	(weldon)	Decimal	Metric	1-11	12-24	25-49
62057	-	.1969	5.000	6.0	65	15	-	-	-	23.44	22.42	21.40	20.38	
27524	-	.1969	5.000	6.0	65	15	0.30	-	-	24.16	23.11	22.06	21.01	
27526	-	.1969	5.000	6.0	65	15	0.50	-	-	24.16	23.11	22.06	21.01	
27528	-	.1969	5.000	6.0	65	15	1.00	-	-	24.16	23.11	22.06	21.01	
28520	-	.1969	5.000	6.0	65	15	BALL	-	-	24.16	23.11	22.06	21.01	
63110	-	.1969	5.000	6.0	100	10	0.30	-	-	46.30	44.29	42.27	40.26	
NEW 61192	-	.1969	5.000	6.0	100	10	0.30	55	4.70	54.21	51.85	49.50	47.14	
NEW 61194	-	.2188	7/32"	5.558	1/4"	2"	3/8"	-	-	18.09	17.30	16.52	15.73	
NEW 61196	-	.2188	7/32"	5.558	1/4"	2"	3/8"	.010"	-	20.98	20.06	19.15	18.24	
27525	-	.2188	7/32"	5.558	1/4"	2"	3/8"	.015"	-	20.98	20.06	19.15	18.24	
NEW 61198	-	.2188	7/32"	5.558	1/4"	2"	3/8"	BALL	-	20.98	20.06	19.15	18.24	
NEW 61200	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	-	-	20.54	19.65	18.75	17.86	
NEW 61202	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	.010"	-	23.26	22.25	21.24	20.23	
27530	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	.015"	-	23.26	22.25	21.24	20.23	
NEW 61204	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	.020"	-	23.26	22.25	21.24	20.23	
NEW 61206	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	BALL	-	23.26	22.25	21.24	20.23	
NEW 61208	-	.2188	7/32"	5.558	1/4"	3"	1-1/4"	.015"	-	34.48	32.98	31.48	29.98	
63120	-	.2188	7/32"	5.558	1/4"	4"	3/8"	.015"	-	44.71	42.77	40.82	38.88	
NEW 61210	-	.2188	7/32"	5.558	1/4"	4"	3/8"	.015"	2-1/4"	.205"	52.62	50.33	48.04	45.76
62077	-	.2362	6.000	6.0	50	12	-	-	-	18.25	17.46	16.66	15.87	
27535	-	.2362	6.000	6.0	50	12	0.30	-	-	21.10	20.19	19.27	18.35	
NEW 61212	-	.2362	6.000	6.0	50	12	0.50	-	-	21.10	20.19	19.27	18.35	
NEW 61214	-	.2362	6.000	6.0	50	12	0.75	-	-	21.10	20.19	19.27	18.35	
28530	-	.2362	6.000	6.0	50	12	BALL	-	-	21.10	20.19	19.27	18.35	
62087	-	.2362	6.000	6.0	65	19	-	-	-	20.57	19.68	18.78	17.89	
NEW 61216	-	.2362	6.000	6.0	65	19	0.20	-	-	23.39	22.37	21.36	20.34	
27540	-	.2362	6.000	6.0	65	19	0.30	-	-	23.39	22.37	21.36	20.34	
27545	-	.2362	6.000	6.0	65	19	0.50	-	-	23.39	22.37	21.36	20.34	
NEW 61218	-	.2362	6.000	6.0	65	19	0.75	-	-	23.39	22.37	21.36	20.34	
27547	-	.2362	6.000	6.0	65	19	1.00	-	-	23.39	22.37	21.36	20.34	
27548	-	.2362	6.000	6.0	65	19	1.50	-	-	23.39	22.37	21.36	20.34	
28540	-	.2362	6.000	6.0	65	19	BALL	-	-	23.39	22.37	21.36	20.34	
NEW 61220	-	.2362	6.000	6.0	75	26	0.30	-	-	34.80	33.29	31.77	30.26	
NEW 61222	-	.2362	6.000	6.0	75	26	0.50	-	-	34.80	33.29	31.77	30.26	
NEW 61224	-	.2362	6.000	6.0	75	38	0.30	-	-	34.80	33.29	31.77	30.26	
NEW 61226	-	.2362	6.000	6.0	75	38	0.50	-	-	34.80	33.29	31.77	30.26	
63130	-	.2362	6.000	6.0	100	12	0.30	32	5.70	45.14	43.18	41.21	39.25	
62137	-	.2500	1/4"	6.350	1/4"	2"	3/8"	-	-	17.51	16.75	15.99	15.23	
NEW 61228	-	.2500	1/4"	6.350	1/4"	2"	3/8"	.010"	-	20.31	19.43	18.54	17.66	
27560	-	.2500	1/4"	6.350	1/4"	2"	3/8"	.015"	-	20.31	19.43	18.54	17.66	
NEW 61230	-	.2500	1/4"	6.350	1/4"	2"	3/8"	.020"	-	20.31	19.43	18.54	17.66	
28570	-	.2500	1/4"	6.350	1/4"	2"	3/8"	BALL	-	20.31	19.43	18.54	17.66	
NEW 61232	-	.2500	1/4"	6.350	1/4"	2"	1/2"	-	-	17.51	16.75	15.99	15.23	
NEW 61234	-	.2500	1/4"	6.350	1/4"	2"	1/2"	.015"	-	20.31	19.43	18.54	17.66	
62147	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	-	-	19.86	19.00	18.13	17.27	
27570	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.010"	-	22.49	21.52	20.54	19.56	
27580	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.015"	-	22.49	21.52	20.54	19.56	
NEW 61236	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.020"	-	22.49	21.52	20.54	19.56	
27581	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.030"	-	22.49	21.52	20.54	19.56	
NEW 61238	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.040"	-	22.49	21.52	20.54	19.56	
27583	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.060"	-	22.49	21.52	20.54	19.56	
28580	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	BALL	-	22.49	21.52	20.54	19.56	

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MATERIAL HARDNESS (Rc)

	EDP#	d_1 †		d_2	l_1	l_2	r	l_3	d_3	1-11	12-24	25-49	50-100		
		(plain)	(weldon)											Decimal	Diameter
NEW	61240	-	.2500	1/4"	6.350	1/4"	3"	1"	.015"	-	-	33.33	31.88	30.43	28.98
NEW	61242	-	.2500	1/4"	6.350	1/4"	3"	1-1/2"	.015"	-	-	33.33	31.88	30.43	28.98
NEW	61244	-	.2500	1/4"	6.350	1/4"	4"	3/8"	.015"	3/4"	.240"	43.59	41.69	39.80	37.90
	63140	-	.2500	1/4"	6.350	1/4"	4"	3/8"	.015"	1-1/4"	.240"	43.59	41.69	39.80	37.90
NEW	61246	-	.2500	1/4"	6.350	1/4"	4"	3/8"	.015"	2-1/8"	.240"	43.59	41.69	39.80	37.90
	27585	-	.2756		7.000	8.0	50	12	0.30	-	-	32.94	31.50	30.07	28.64
	27590	-	.2756		7.000	8.0	65	22	0.30	-	-	36.20	34.63	33.05	31.48
NEW	61248	-	.2812	9/32"	7.142	5/16"	2"	7/16"	-	-	-	27.70	26.50	25.29	24.09
	27595	-	.2812	9/32"	7.142	5/16"	2"	7/16"	.015"	-	-	31.74	30.36	28.98	27.60
NEW	61250	-	.2812	9/32"	7.142	5/16"	2-1/2"	13/16"	-	-	-	32.42	31.01	29.60	28.19
NEW	61252	-	.2812	9/32"	7.142	5/16"	2-1/2"	13/16"	.010"	-	-	34.89	33.37	31.86	30.34
	27597	-	.2812	9/32"	7.142	5/16"	2-1/2"	13/16"	.015"	-	-	34.89	33.37	31.86	30.34
NEW	61254	-	.2812	9/32"	7.142	5/16"	2-1/2"	13/16"	.020"	-	-	34.89	33.37	31.86	30.34
	63150	-	.2812	9/32"	7.142	5/16"	4"	7/16"	.015"	-	-	60.28	57.66	55.04	52.42
	62207	-	.3125	5/16"	7.938	5/16"	2"	7/16"	-	-	-	24.21	23.16	22.10	21.05
NEW	61256	-	.3125	5/16"	7.938	5/16"	2"	7/16"	.010"	-	-	27.74	26.53	25.33	24.12
NEW	61258	-	.3125	5/16"	7.938	5/16"	2"	7/16"	.015"	-	-	27.74	26.53	25.33	24.12
	27600	-	.3125	5/16"	7.938	5/16"	2"	7/16"	.020"	-	-	27.74	26.53	25.33	24.12
NEW	61260	-	.3125	5/16"	7.938	5/16"	2"	7/16"	.030"	-	-	27.74	26.53	25.33	24.12
	28610	-	.3125	5/16"	7.938	5/16"	2"	7/16"	BALL	-	-	27.74	26.53	25.33	24.12
	62217	-	.3125	5/16"	7.938	5/16"	2-1/2"	13/16"	-	-	-	28.32	27.09	25.86	24.63
	27610	-	.3125	5/16"	7.938	5/16"	2-1/2"	13/16"	.010"	-	-	30.49	29.16	27.84	26.51
NEW	61262	-	.3125	5/16"	7.938	5/16"	2-1/2"	13/16"	.015"	-	-	30.49	29.16	27.84	26.51
	27620	-	.3125	5/16"	7.938	5/16"	2-1/2"	13/16"	.020"	-	-	30.49	29.16	27.84	26.51
	27622	-	.3125	5/16"	7.938	5/16"	2-1/2"	13/16"	.030"	-	-	30.49	29.16	27.84	26.51
NEW	61264	-	.3125	5/16"	7.938	5/16"	2-1/2"	13/16"	.040"	-	-	30.49	29.16	27.84	26.51
	27624	-	.3125	5/16"	7.938	5/16"	2-1/2"	13/16"	.060"	-	-	30.49	29.16	27.84	26.51
	28620	-	.3125	5/16"	7.938	5/16"	2-1/2"	13/16"	BALL	-	-	30.49	29.16	27.84	26.51
NEW	61266	-	.3125	5/16"	7.938	5/16"	3"	1-1/4"	.015"	-	-	42.50	40.65	38.80	36.96
	63160	-	.3125	5/16"	7.938	5/16"	4"	7/16"	.020"	1-7/8"	.300"	58.78	56.22	53.67	51.11
	62257	-	.3150		8.000	8.0	50	12	-	-	-	25.20	24.10	23.01	21.91
NEW	61268	-	.3150		8.000	8.0	50	12	0.30	-	-	28.76	27.51	26.26	25.01
	27630	-	.3150		8.000	8.0	50	12	0.50	-	-	28.76	27.51	26.26	25.01
NEW	61270	-	.3150		8.000	8.0	50	12	0.75	-	-	28.76	27.51	26.26	25.01
	28630	-	.3150		8.000	8.0	50	12	BALL	-	-	28.76	27.51	26.26	25.01
	62267	-	.3150		8.000	8.0	65	22	-	-	-	29.35	28.07	26.80	25.52
	27635	-	.3150		8.000	8.0	65	22	0.30	-	-	31.63	30.25	28.88	27.50
	27640	-	.3150		8.000	8.0	65	22	0.50	-	-	31.63	30.25	28.88	27.50
NEW	61272	-	.3150		8.000	8.0	65	22	0.75	-	-	31.63	30.25	28.88	27.50
	27642	-	.3150		8.000	8.0	65	22	1.00	-	-	31.63	30.25	28.88	27.50
	27643	-	.3150		8.000	8.0	65	22	1.50	-	-	31.63	30.25	28.88	27.50
NEW	61274	-	.3150		8.000	8.0	65	22	2.00	-	-	31.63	30.25	28.88	27.50
	28640	-	.3150		8.000	8.0	65	22	BALL	-	-	31.63	30.25	28.88	27.50
NEW	61276	-	.3150		8.000	8.0	75	38	0.50	-	-	44.31	42.38	40.46	38.53
NEW	61278	-	.3150		8.000	8.0	100	50	0.50	-	-	50.62	48.42	46.22	44.02
	63170	-	.3150		8.000	8.0	100	12	0.50	47	7.60	60.81	58.17	55.52	52.88
NEW	61280	-	.3438	11/32"	8.733	3/8"	2"	1/2"	-	-	-	32.36	30.95	29.55	28.14
	27645	-	.3438	11/32"	8.733	3/8"	2"	1/2"	.020"	-	-	37.04	35.43	33.82	32.21
NEW	61282	-	.3438	11/32"	8.733	3/8"	2-1/2"	7/8"	-	-	-	37.81	36.17	34.52	32.88
	27650	-	.3438	11/32"	8.733	3/8"	2-1/2"	7/8"	.020"	-	-	40.27	38.52	36.77	35.02
NEW	61284	-	.3438	11/32"	8.733	3/8"	3"	1-1/4"	.015"	-	-	53.00	50.70	48.39	46.09

70

35

MATERIAL HARDNESS (Rc)

0

continued →

Series VRX (continued)

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



TECH
PAGES
267

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

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



AlTiN Coating

Solid submicron grain carbide end mill - center cutting

The standard in high performance 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 †		d2	l1	l2	r	l3	d3	1-11	12-24	25-49	50-100	
			Decimal	Metric											Shank Diameter
63180	-	-	.3438	11/32"	8.733	3/8"	4"	1/2"	.020"	-	-	64.54	61.73	58.93	56.12
27655	-	-	.3543		9.000	10.0	50	14	0.50	-	-	44.72	42.78	40.83	38.89
62287	-	-	.3543		9.000	10.0	65	22	-	-	-	45.32	43.35	41.38	39.41
27657	-	-	.3543		9.000	10.0	65	22	0.50	-	-	48.61	46.50	44.38	42.27
62317	-	-	.3750	3/8"	9.525	3/8"	2"	1/2"	-	-	-	28.60	27.36	26.11	24.87
27658	-	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.010"	-	-	32.74	31.32	29.89	28.47
NEW 61286	-	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.015"	-	-	32.74	31.32	29.89	28.47
27660	-	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.020"	-	-	32.74	31.32	29.89	28.47
27662	-	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.030"	-	-	32.74	31.32	29.89	28.47
NEW 61288	-	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.060"	-	-	32.74	31.32	29.89	28.47
28670	-	-	.3750	3/8"	9.525	3/8"	2"	1/2"	BALL	-	-	32.74	31.32	29.89	28.47
62327	-	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	-	-	-	33.42	31.97	30.51	29.06
27670	-	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.010"	-	-	35.60	34.06	32.51	30.96
NEW 61290	-	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.015"	-	-	35.60	34.06	32.51	30.96
27680	-	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.020"	-	-	35.60	34.06	32.51	30.96
27682	-	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.030"	-	-	35.60	34.06	32.51	30.96
NEW 61292	-	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.040"	-	-	35.60	34.06	32.51	30.96
NEW 61294	-	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.050"	-	-	35.60	34.06	32.51	30.96
27684	-	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.060"	-	-	35.60	34.06	32.51	30.96
NEW 61296	-	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.094"	-	-	35.60	34.06	32.51	30.96
28680	-	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	BALL	-	-	35.60	34.06	32.51	30.96
NEW 61298	-	-	.3750	3/8"	9.525	3/8"	3"	1-1/4"	.015"	-	-	46.85	44.81	42.78	40.74
NEW 61300	-	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"	.015"	-	-	52.73	50.44	48.14	45.85
NEW 61302	-	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"	BALL	-	-	52.73	50.44	48.14	45.85
NEW 61304	-	-	.3750	3/8"	9.525	3/8"	4"	2"	.015"	-	-	52.73	50.44	48.14	45.85
NEW 61306	-	-	.3750	3/8"	9.525	3/8"	4"	1/2"	.015"	1-1/8"	.360"	62.92	60.18	57.45	54.71
63190	-	-	.3750	3/8"	9.525	3/8"	4"	1/2"	.020"	1-7/8"	.360"	62.92	60.18	57.45	54.71
NEW 61308	-	-	.3750	3/8"	9.525	3/8"	4"	1/2"	.015"	2-1/8"	.360"	62.92	60.18	57.45	54.71
NEW 61310	-	-	.3750	3/8"	9.525	3/8"	6"	1/2"	.015"	3-1/8"	.360"	83.19	79.57	75.96	72.34
NEW 61312	-	-	.3937		10.000	10.0	50	16	-	-	-	36.85	35.25	33.65	32.04
27690	-	-	.3937		10.000	10.0	50	16	0.50	-	-	39.53	37.81	36.09	34.37
NEW 61314	-	-	.3937		10.000	10.0	50	16	1.00	-	-	39.53	37.81	36.09	34.37
28690	-	-	.3937		10.000	10.0	50	16	BALL	-	-	39.53	37.81	36.09	34.37
62397	-	-	.3937		10.000	10.0	70	22	-	-	-	40.08	38.34	36.59	34.85
27698	-	-	.3937		10.000	10.0	70	22	0.30	-	-	42.99	41.12	39.25	37.38
27700	-	-	.3937		10.000	10.0	70	22	0.50	-	-	42.99	41.12	39.25	37.38
NEW 61316	-	-	.3937		10.000	10.0	70	22	0.75	-	-	42.99	41.12	39.25	37.38
27702	-	-	.3937		10.000	10.0	70	22	1.00	-	-	42.99	41.12	39.25	37.38
28700	-	-	.3937		10.000	10.0	70	22	BALL	-	-	42.99	41.12	39.25	37.38
NEW 61318	-	-	.3937		10.000	10.0	70	32	0.50	-	-	42.99	41.12	39.25	37.38
NEW 61320	-	-	.3937		10.000	10.0	100	38	0.50	-	-	66.76	63.86	60.95	58.05
NEW 61322	-	-	.3937		10.000	10.0	100	50	0.50	-	-	66.76	63.86	60.95	58.05
63200	-	-	.3937		10.000	10.0	100	14	0.50	47	9.50	76.95	73.60	70.26	66.91

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"	-	-	43.06	41.18	39.31	37.44
28705	-	.4375	7/16"	11.113	7/16"	2-1/2"	5/8"	BALL	-	-	43.06	41.18	39.31	37.44
62437	-	.4375	7/16"	11.113	7/16"	2-3/4"	7/8"	-	-	-	40.17	38.42	36.68	34.93
27708	-	.4375	7/16"	11.113	7/16"	2-3/4"	7/8"	.010"	-	-	43.06	41.18	39.31	37.44
27710	-	.4375	7/16"	11.113	7/16"	2-3/4"	7/8"	.020"	-	-	43.06	41.18	39.31	37.44
28710	-	.4375	7/16"	11.113	7/16"	2-3/4"	7/8"	BALL	-	-	43.06	41.18	39.31	37.44
63210	-	.4375	7/16"	11.113	7/16"	6"	1"	.020"	-	-	92.81	88.77	84.74	80.70
62475	-	.4724		12.000	12.0	65	19	-	-	-	48.78	46.66	44.54	42.42
27712	-	.4724		12.000	12.0	65	19	0.30	-	-	56.74	54.27	51.81	49.34
27715	-	.4724		12.000	12.0	65	19	0.50	-	-	56.74	54.27	51.81	49.34
28715	-	.4724		12.000	12.0	65	19	BALL	-	-	56.74	54.27	51.81	49.34
NEW 61324	-	.4724		12.000	12.0	75	26	-	-	-	52.05	49.79	47.52	45.26
NEW 61326	-	.4724		12.000	12.0	75	26	0.50	-	-	63.31	60.56	57.80	55.05
62485	-	.4724		12.000	12.0	75	32	-	-	-	52.05	49.79	47.52	45.26
27718	-	.4724		12.000	12.0	75	32	0.30	-	-	63.31	60.56	57.80	55.05
27720	-	.4724		12.000	12.0	75	32	0.50	-	-	63.31	60.56	57.80	55.05
NEW 61328	-	.4724		12.000	12.0	75	32	0.75	-	-	63.31	60.56	57.80	55.05
27722	-	.4724		12.000	12.0	75	32	1.00	-	-	63.31	60.56	57.80	55.05
27730	-	.4724		12.000	12.0	75	32	1.50	-	-	63.31	60.56	57.80	55.05
27735	-	.4724		12.000	12.0	75	32	2.00	-	-	63.31	60.56	57.80	55.05
NEW 61330	-	.4724		12.000	12.0	75	32	3.00	-	-	63.31	60.56	57.80	55.05
28720	-	.4724		12.000	12.0	75	32	BALL	-	-	63.31	60.56	57.80	55.05
NEW 61332	-	.4724		12.000	12.0	100	38	-	-	-	70.98	67.89	64.81	61.72
NEW 61334	-	.4724		12.000	12.0	100	38	0.50	-	-	74.99	71.73	68.47	65.21
NEW 61336	-	.4724		12.000	12.0	100	42	-	-	-	70.98	67.89	64.81	61.72
NEW 61338	-	.4724		12.000	12.0	100	42	0.50	-	-	74.99	71.73	68.47	65.21
NEW 61340	-	.4724		12.000	12.0	100	52	-	-	-	70.98	67.89	64.81	61.72
NEW 61342	-	.4724		12.000	12.0	100	52	0.50	-	-	74.99	71.73	68.47	65.21
63220	-	.4724		12.000	12.0	150	19	0.50	57	11.50	111.68	106.82	101.97	97.11
62525	62527	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	-	-	-	46.78	44.75	42.71	40.68
27739	27738	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.010"	-	-	54.41	52.04	49.68	47.31
NEW 61344	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.015"	-	-	54.41	52.04	49.68	47.31
27741	27740	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.020"	-	-	54.41	52.04	49.68	47.31
27743	27742	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.030"	-	-	54.41	52.04	49.68	47.31
NEW 61346	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.060"	-	-	54.41	52.04	49.68	47.31
28751	28750	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	BALL	-	-	54.41	52.04	49.68	47.31
NEW 61348	-	.5000	1/2"	12.700	1/2"	3"	1"	-	-	-	49.98	47.81	45.63	43.46
NEW 61350	-	.5000	1/2"	12.700	1/2"	3"	1"	.015"	-	-	60.73	58.09	55.45	52.81
NEW 61352	-	.5000	1/2"	12.700	1/2"	3"	1"	.030"	-	-	60.73	58.09	55.45	52.81
NEW 61354	-	.5000	1/2"	12.700	1/2"	3"	1"	.060"	-	-	60.73	58.09	55.45	52.81
NEW 61356	-	.5000	1/2"	12.700	1/2"	3"	1"	.125"	-	-	60.73	58.09	55.45	52.81
NEW 61358	-	.5000	1/2"	12.700	1/2"	3"	1"	BALL	-	-	60.73	58.09	55.45	52.81
62535	62537	.5000	1/2"	12.700	1/2"	3"	1-1/4"	-	-	-	49.98	47.81	45.63	43.46
27751	27750	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.010"	-	-	60.73	58.09	55.45	52.81
NEW 61360	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.015"	-	-	60.73	58.09	55.45	52.81
27761	27760	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.020"	-	-	60.73	58.09	55.45	52.81
27763	27762	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.030"	-	-	60.73	58.09	55.45	52.81
NEW 61362	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.040"	-	-	60.73	58.09	55.45	52.81
NEW 61364	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.050"	-	-	60.73	58.09	55.45	52.81
27767	27764	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.060"	-	-	60.73	58.09	55.45	52.81
NEW 61366	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.078"	-	-	60.73	58.09	55.45	52.81
63398	63399	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.090"	-	-	60.73	58.09	55.45	52.81

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MATERIAL HARDNESS (Rc)

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continued →

Series VRX (continued)

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

	EDP#		d1 †		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											
NEW	61368	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.094"	-	-	60.73	58.09	55.45	52.81
NEW	61370	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.100"	-	-	60.73	58.09	55.45	52.81
	27769	27768	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.120"	-	-	60.73	58.09	55.45	52.81
NEW	61372	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.125"	-	-	60.73	58.09	55.45	52.81
	28761	28760	.5000	1/2"	12.700	1/2"	3"	1-1/4"	BALL	-	-	60.73	58.09	55.45	52.81
	28771	28770	.5000	1/2"	12.700	1/2"	4"	5/8"	BALL	-	-	71.77	68.65	65.53	62.41
NEW	61374	-	.5000	1/2"	12.700	1/2"	4"	1-1/2"	-	-	-	67.63	64.69	61.75	58.81
	63401	63400	.5000	1/2"	12.700	1/2"	4"	1-1/2"	.010"	-	-	71.77	68.65	65.53	62.41
NEW	61376	-	.5000	1/2"	12.700	1/2"	4"	1-1/2"	.015"	-	-	71.77	68.65	65.53	62.41
	63411	63410	.5000	1/2"	12.700	1/2"	4"	1-1/2"	.030"	-	-	71.77	68.65	65.53	62.41
	63421	63420	.5000	1/2"	12.700	1/2"	4"	1-1/2"	.060"	-	-	71.77	68.65	65.53	62.41
NEW	61378	-	.5000	1/2"	12.700	1/2"	4"	1-1/2"	BALL	-	-	71.77	68.65	65.53	62.41
NEW	61380	-	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.015"	-	-	71.77	68.65	65.53	62.41
NEW	61382	-	.5000	1/2"	12.700	1/2"	4"	1-3/4"	.015"	-	-	71.77	68.65	65.53	62.41
	62565	62567	.5000	1/2"	12.700	1/2"	4"	2"	-	-	-	67.63	64.69	61.75	58.81
	63431	63430	.5000	1/2"	12.700	1/2"	4"	2"	.010"	-	-	71.77	68.65	65.53	62.41
NEW	61384	-	.5000	1/2"	12.700	1/2"	4"	2"	.015"	-	-	71.77	68.65	65.53	62.41
	63441	63440	.5000	1/2"	12.700	1/2"	4"	2"	.030"	-	-	71.77	68.65	65.53	62.41
	63451	63450	.5000	1/2"	12.700	1/2"	4"	2"	.060"	-	-	71.77	68.65	65.53	62.41
NEW	61386	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.015"	-	-	71.77	68.65	65.53	62.41
	63241	63240	.5000	1/2"	12.700	1/2"	6"	2"	.020"	-	-	101.50	97.09	92.67	88.26
NEW	61388	-	.5000	1/2"	12.700	1/2"	6"	2-1/2"	.015"	-	-	101.50	97.09	92.67	88.26
NEW	61390	-	.5000	1/2"	12.700	1/2"	6"	2-1/2"	.030"	-	-	101.50	97.09	92.67	88.26
NEW	61392	-	.5000	1/2"	12.700	1/2"	6"	3-1/4"	.030"	-	-	101.50	97.09	92.67	88.26
NEW	61394	-	.5000	1/2"	12.700	1/2"	4"	5/8"	.015"	1-1/2"	.480"	81.93	78.36	74.80	71.24
NEW	61396	-	.5000	1/2"	12.700	1/2"	4"	5/8"	.015"	2-1/4"	.480"	81.93	78.36	74.80	71.24
	63231	63230	.5000	1/2"	12.700	1/2"	4"	5/8"	.020"	2-1/4"	.480"	81.93	78.36	74.80	71.24
NEW	61398	-	.5000	1/2"	12.700	1/2"	6"	5/8"	.015"	3-3/8"	.480"	111.65	106.80	101.94	97.09
NEW	61400	-	.5000	1/2"	12.700	1/2"	6"	5/8"	.015"	4-1/8"	.480"	111.65	106.80	101.94	97.09
	27766	27765	.5512		14.000	14.0	75	19	0.50	-	-	89.61	85.71	81.82	77.92
	28781	28780	.5512		14.000	14.0	75	19	BALL	-	-	89.61	85.71	81.82	77.92
	27771	27770	.5512		14.000	14.0	88	32	0.50	-	-	92.10	88.10	84.09	80.09
	28786	28785	.5512		14.000	14.0	88	32	BALL	-	-	92.10	88.10	84.09	80.09
	63261	63260	.5512		14.000	14.0	150	50	0.50	-	-	138.25	132.24	126.23	120.22
	63251	63250	.5512		14.000	14.0	150	19	0.50	57	13.50	148.44	141.99	135.53	129.08
	62625	62627	.5625	9/16"	14.288	9/16"	3-1/2"	1-1/4"	-	-	-	83.11	79.50	75.88	72.27
NEW	61402	-	.6250	5/8"	15.875	5/8"	3"	3/4"	-	-	-	89.60	85.70	81.81	77.91
	63461	63460	.6250	5/8"	15.875	5/8"	3"	3/4"	.010"	-	-	94.07	89.98	85.89	81.80
NEW	61404	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.015"	-	-	94.07	89.98	85.89	81.80
	27781	27780	.6250	5/8"	15.875	5/8"	3"	3/4"	.025"	-	-	94.07	89.98	85.89	81.80
NEW	61406	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.060"	-	-	94.07	89.98	85.89	81.80
	28796	28795	.6250	5/8"	15.875	5/8"	3"	3/4"	BALL	-	-	94.07	89.98	85.89	81.80
	62655	62657	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	-	-	-	92.22	88.21	84.20	80.19
	27791	27790	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.010"	-	-	96.69	92.49	88.28	84.08
NEW	61408	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.015"	-	-	96.69	92.49	88.28	84.08
NEW	61410	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.020"	-	-	96.69	92.49	88.28	84.08
	27801	27800	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.025"	-	-	96.69	92.49	88.28	84.08
NEW	61412	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.030"	-	-	96.69	92.49	88.28	84.08
NEW	61414	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.040"	-	-	96.69	92.49	88.28	84.08
	27803	27802	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.060"	-	-	96.69	92.49	88.28	84.08
NEW	61416	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.078"	-	-	96.69	92.49	88.28	84.08
NEW	61418	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.094"	-	-	96.69	92.49	88.28	84.08
	27805	27804	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.120"	-	-	96.69	92.49	88.28	84.08
NEW	61420	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.125"	-	-	96.69	92.49	88.28	84.08
	28801	28800	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	BALL	-	-	96.69	92.49	88.28	84.08

MATERIAL HARDNESS (Rc)

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	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											
NEW	61422	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	-	-	-	98.49	94.20	89.92	85.64
	63501	63500	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.010"	-	-	105.10	100.53	95.96	91.39
NEW	61424	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.015"	-	-	105.10	100.53	95.96	91.39
	63511	63510	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.030"	-	-	105.10	100.53	95.96	91.39
	63521	63520	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.060"	-	-	105.10	100.53	95.96	91.39
NEW	61426	-	.6250	5/8"	15.875	5/8"	4"	1-5/8"	-	-	-	98.49	94.20	89.92	85.64
NEW	61428	-	.6250	5/8"	15.875	5/8"	4"	1-5/8"	.015"	-	-	105.10	100.53	95.96	91.39
NEW	61430	-	.6250	5/8"	15.875	5/8"	4"	1-5/8"	.030"	-	-	105.10	100.53	95.96	91.39
NEW	61432	-	.6250	5/8"	15.875	5/8"	4"	1-5/8"	.060"	-	-	105.10	100.53	95.96	91.39
	62675	62677	.6250	5/8"	15.875	5/8"	4"	1-3/4"	-	-	-	98.49	94.20	89.92	85.64
	63531	63530	.6250	5/8"	15.875	5/8"	4"	1-3/4"	.010"	-	-	105.10	100.53	95.96	91.39
	63541	63540	.6250	5/8"	15.875	5/8"	4"	1-3/4"	.030"	-	-	105.10	100.53	95.96	91.39
	63551	63550	.6250	5/8"	15.875	5/8"	4"	1-3/4"	.060"	-	-	105.10	100.53	95.96	91.39
	63281	63280	.6250	5/8"	15.875	5/8"	6"	2"	.025"	-	-	144.68	138.39	132.10	125.81
	28806	28805	.6250	5/8"	15.875	5/8"	6"	2"	BALL	-	-	144.68	138.39	132.10	125.81
NEW	61434	-	.6250	5/8"	15.875	5/8"	6"	2-1/2"	.030"	-	-	144.68	138.39	132.10	125.81
NEW	61436	-	.6250	5/8"	15.875	5/8"	6"	3-1/4"	.030"	-	-	144.68	138.39	132.10	125.81
NEW	61438	-	.6250	5/8"	15.875	5/8"	4"	3/4"	.030"	1-5/8"	.600"	115.26	110.25	105.24	100.23
NEW	61440	-	.6250	5/8"	15.875	5/8"	6"	3/4"	.030"	2-3/8"	.600"	154.85	148.12	141.38	134.65
	63271	63270	.6250	5/8"	15.875	5/8"	6"	3/4"	.025"	3-1/4"	.600"	154.85	148.12	141.38	134.65
NEW	61442	-	.6250	5/8"	15.875	5/8"	6"	3/4"	.030"	4-1/8"	.600"	154.85	148.12	141.38	134.65
NEW	61444	-	.6299		16.000	16.0	75	19	-	-	-	93.64	89.57	85.50	81.43
	27809	-	.6299		16.000	16.0	75	19	0.30	-	-	98.20	93.93	89.66	85.39
	27811	27810	.6299		16.000	16.0	75	19	0.50	-	-	98.20	93.93	89.66	85.39
NEW	61446	-	.6299		16.000	16.0	75	19	1.00	-	-	98.20	93.93	89.66	85.39
	28811	28810	.6299		16.000	16.0	75	19	BALL	-	-	98.20	93.93	89.66	85.39
	62715	62717	.6299		16.000	16.0	88	32	-	-	-	96.21	92.03	87.84	83.66
	27819	27818	.6299		16.000	16.0	88	32	0.30	-	-	100.89	96.50	92.12	87.73
	27821	27820	.6299		16.000	16.0	88	32	0.50	-	-	100.89	96.50	92.12	87.73
NEW	61448	-	.6299		16.000	16.0	88	32	0.75	-	-	100.89	96.50	92.12	87.73
	27823	27822	.6299		16.000	16.0	88	32	1.00	-	-	100.89	96.50	92.12	87.73
NEW	61450	-	.6299		16.000	16.0	88	32	1.50	-	-	100.89	96.50	92.12	87.73
	27825	27824	.6299		16.000	16.0	88	32	2.00	-	-	100.89	96.50	92.12	87.73
NEW	61452	-	.6299		16.000	16.0	88	32	3.00	-	-	100.89	96.50	92.12	87.73
	28821	28820	.6299		16.000	16.0	88	32	BALL	-	-	100.89	96.50	92.12	87.73
	63581	63580	.6299		16.000	16.0	100	38	0.30	-	-	107.28	102.62	97.95	93.29
NEW	61454	-	.6299		16.000	16.0	100	38	0.50	-	-	107.28	102.62	97.95	93.29
NEW	61456	-	.6299		16.000	16.0	100	42	0.50	-	-	107.28	102.62	97.95	93.29
	63291	63290	.6299		16.000	16.0	150	19	0.50	82	15.25	154.85	148.12	141.38	134.65
	27831	-	.7087		18.000	18.0	75	22	0.80	-	-	141.66	135.50	129.34	123.18
	28831	-	.7087		18.000	18.0	75	22	BALL	-	-	141.66	135.50	129.34	123.18
	27836	27835	.7087		18.000	18.0	100	38	0.80	-	-	144.84	138.55	132.25	125.95
	28836	28835	.7087		18.000	18.0	100	38	BALL	-	-	144.84	138.55	132.25	125.95
	63301	-	.7087		18.000	18.0	150	25	0.80	82	17.25	225.72	215.91	206.09	196.28

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MATERIAL HARDNESS (Rc)

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continued →

Series VRX (continued)

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

	EDP#		$d1$ †		$d2$ 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	Diameter Metric											
NEW	61458	-	.7500	3/4"	19.050	3/4"	3"	7/8"	-	-	-	128.82	123.22	117.62	112.02
	27841	27840	.7500	3/4"	19.050	3/4"	3"	7/8"	.030"	-	-	135.70	129.80	123.90	118.00
NEW	61460	-	.7500	3/4"	19.050	3/4"	3"	7/8"	.060"	-	-	135.70	129.80	123.90	118.00
	28841	28840	.7500	3/4"	19.050	3/4"	3"	7/8"	BALL	-	-	135.70	129.80	123.90	118.00
NEW	61462	-	.7500	3/4"	19.050	3/4"	4"	1-1/4"	-	-	-	131.64	125.92	120.19	114.47
NEW	61464	-	.7500	3/4"	19.050	3/4"	4"	1-1/4"	.030"	-	-	138.66	132.63	126.60	120.57
	62775	62777	.7500	3/4"	19.050	3/4"	4"	1-1/2"	-	-	-	131.64	125.92	120.19	114.47
	27851	27850	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.015"	-	-	138.66	132.63	126.60	120.57
	27861	27860	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.030"	-	-	138.66	132.63	126.60	120.57
	27865	27864	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.060"	-	-	138.66	132.63	126.60	120.57
	27867	27866	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.120"	-	-	138.66	132.63	126.60	120.57
	28861	28860	.7500	3/4"	19.050	3/4"	4"	1-1/2"	BALL	-	-	138.66	132.63	126.60	120.57
NEW	61466	-	.7500	3/4"	19.050	3/4"	4"	1-5/8"	-	-	-	131.64	125.92	120.19	114.47
NEW	61468	-	.7500	3/4"	19.050	3/4"	4"	1-5/8"	.015"	-	-	138.66	132.63	126.60	120.57
NEW	61470	-	.7500	3/4"	19.050	3/4"	4"	1-5/8"	.030"	-	-	138.66	132.63	126.60	120.57
NEW	61472	-	.7500	3/4"	19.050	3/4"	4"	1-5/8"	.060"	-	-	138.66	132.63	126.60	120.57
NEW	61474	-	.7500	3/4"	19.050	3/4"	4"	1-5/8"	BALL	-	-	138.66	132.63	126.60	120.57
	62785	62787	.7500	3/4"	19.050	3/4"	4"	1-3/4"	-	-	-	131.64	125.92	120.19	114.47
	63601	63600	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.015"	-	-	138.66	132.63	126.60	120.57
	27869	27868	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.030"	-	-	138.66	132.63	126.60	120.57
	63611	63610	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.060"	-	-	138.66	132.63	126.60	120.57
NEW	61476	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.094"	-	-	138.66	132.63	126.60	120.57
	63621	63620	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.120"	-	-	138.66	132.63	126.60	120.57
NEW	61478	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.190"	-	-	138.66	132.63	126.60	120.57
NEW	61480	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	BALL	-	-	138.66	132.63	126.60	120.57
	62795	62797	.7500	3/4"	19.050	3/4"	5"	2"	-	-	-	176.69	169.00	161.32	153.64
	63631	63630	.7500	3/4"	19.050	3/4"	5"	2"	.015"	-	-	192.33	183.96	175.60	167.24
	63311	63310	.7500	3/4"	19.050	3/4"	5"	2"	.030"	-	-	192.33	183.96	175.60	167.24
	63641	63640	.7500	3/4"	19.050	3/4"	5"	2"	.060"	-	-	192.33	183.96	175.60	167.24
NEW	61482	-	.7500	3/4"	19.050	3/4"	5"	2"	.094"	-	-	192.33	183.96	175.60	167.24
NEW	61484	-	.7500	3/4"	19.050	3/4"	5"	2"	.125"	-	-	192.33	183.96	175.60	167.24
	28866	28865	.7500	3/4"	19.050	3/4"	5"	2"	BALL	-	-	192.33	183.96	175.60	167.24
NEW	61486	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	-	-	-	176.69	169.01	161.33	153.64
NEW	61488	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.030"	-	-	192.33	183.96	175.60	167.24
	62805	62807	.7500	3/4"	19.050	3/4"	6"	3"	-	-	-	206.77	197.78	188.79	179.80
	63651	63650	.7500	3/4"	19.050	3/4"	6"	3"	.015"	-	-	228.46	218.53	208.59	198.66
	63661	63660	.7500	3/4"	19.050	3/4"	6"	3"	.030"	-	-	228.46	218.53	208.59	198.66
	63671	63670	.7500	3/4"	19.050	3/4"	6"	3"	.060"	-	-	228.46	218.53	208.59	198.66
NEW	61490	-	.7500	3/4"	19.050	3/4"	6"	3-1/4"	-	-	-	206.77	197.78	188.79	179.80
NEW	61492	-	.7500	3/4"	19.050	3/4"	6"	3-1/4"	.030"	-	-	228.46	218.53	208.59	198.66
NEW	61494	-	.7500	3/4"	19.050	3/4"	7"	4-1/4"	-	-	-	259.69	248.40	237.11	225.82
NEW	61496	-	.7500	3/4"	19.050	3/4"	7"	4-1/4"	.030"	-	-	288.13	275.60	263.07	250.55
	63321	63320	.7500	3/4"	19.050	3/4"	6"	1"	.030"	3-1/4"	.730"	238.69	228.32	217.94	207.56
NEW	61498	-	.7874		20.000	20.0	75	22	-	-	-	173.93	166.37	158.81	151.24
NEW	61500	-	.7874		20.000	20.0	75	22	0.50	-	-	191.91	183.57	175.22	166.88
	27871	27870	.7874		20.000	20.0	75	22	1.00	-	-	191.91	183.57	175.22	166.88
	28871	28870	.7874		20.000	20.0	75	22	BALL	-	-	191.91	183.57	175.22	166.88
	62825	62827	.7874		20.000	20.0	100	38	-	-	-	177.85	170.12	162.38	154.65
	27879	27878	.7874		20.000	20.0	100	38	0.50	-	-	196.24	187.70	179.17	170.64
NEW	61502	-	.7874		20.000	20.0	100	38	0.75	-	-	196.24	187.70	179.17	170.64
	27881	27880	.7874		20.000	20.0	100	38	1.00	-	-	196.24	187.70	179.17	170.64
	27891	27890	.7874		20.000	20.0	100	38	1.50	-	-	196.24	187.70	179.17	170.64
NEW	61504	-	.7874		20.000	20.0	100	38	3.00	-	-	196.24	187.70	179.17	170.64
	28881	28880	.7874		20.000	20.0	100	38	BALL	-	-	196.24	187.70	179.17	170.64
NEW	61506	-	.7874		20.000	20.0	100	42	0.50	-	-	196.24	187.70	179.17	170.64
NEW	61508	-	.7874		20.000	20.0	125	52	0.50	-	-	217.55	208.09	198.63	189.17
	63331	63330	.7874		20.000	20.0	150	25	1.00	82	19.30	251.39	240.46	229.53	218.60
	27911	-	.8661		22.000	22.0	100	38	1.00	-	-	215.57	206.20	196.82	187.45

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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											
NEW	61510	-	.9843	25.000	25.0	100	26	-	-	-	203.10	194.27	185.44	176.61	
NEW	61512	-	.9843	25.000	25.0	100	26	0.50	-	-	224.91	215.13	205.35	195.57	
	62855	62857	.9843	25.000	25.0	100	38	-	-	-	203.10	194.27	185.44	176.61	
NEW	61514	-	.9843	25.000	25.0	100	38	0.50	-	-	224.91	215.13	205.35	195.57	
	27941	27940	.9843	25.000	25.0	100	38	1.00	-	-	224.91	215.13	205.35	195.57	
	27951	-	.9843	25.000	25.0	100	38	1.50	-	-	224.91	215.13	205.35	195.57	
NEW	61516	-	.9843	25.000	25.0	100	38	3.00	-	-	224.91	215.13	205.35	195.57	
	28901	28900	.9843	25.000	25.0	100	38	BALL	-	-	224.91	215.13	205.35	195.57	
NEW	61518	-	.9843	25.000	25.0	100	42	-	-	-	203.10	194.27	185.44	176.61	
NEW	61520	-	.9843	25.000	25.0	100	42	0.50	-	-	224.91	215.13	205.35	195.57	
NEW	61522	-	.9843	25.000	25.0	125	50	0.50	-	-	280.78	268.58	256.37	244.16	
	63351	63350	.9843	25.000	25.0	125	50	1.00	-	-	280.78	268.58	256.37	244.16	
	63361	63360	.9843	25.000	25.0	150	32	1.00	82	24.40	376.53	360.16	343.79	327.42	
NEW	61524	-	1.000	1"	25.400	1"	4"	1"	-	-	196.66	188.11	179.56	171.01	
	27959	27958	1.000	1"	25.400	1"	4"	1"	.015"	-	236.72	226.42	216.13	205.84	
	27961	27960	1.000	1"	25.400	1"	4"	1"	.035"	-	236.72	226.42	216.13	205.84	
	-	27962	1.000	1"	25.400	1"	4"	1"	.060"	-	236.72	226.42	216.13	205.84	
	27965	27964	1.000	1"	25.400	1"	4"	1"	.090"	-	236.72	226.42	216.13	205.84	
	28911	28910	1.000	1"	25.400	1"	4"	1"	BALL	-	236.72	226.42	216.13	205.84	
	62885	62887	1.000	1"	25.400	1"	4"	1-1/2"	-	-	196.66	188.11	179.56	171.01	
	27967	27966	1.000	1"	25.400	1"	4"	1-1/2"	.015"	-	236.72	226.42	216.13	205.84	
NEW	61526	-	1.000	1"	25.400	1"	4"	1-1/2"	.025"	-	236.72	226.42	216.13	205.84	
	27971	27970	1.000	1"	25.400	1"	4"	1-1/2"	.035"	-	236.72	226.42	216.13	205.84	
	27981	27980	1.000	1"	25.400	1"	4"	1-1/2"	.060"	-	236.72	226.42	216.13	205.84	
	27991	27990	1.000	1"	25.400	1"	4"	1-1/2"	.090"	-	236.72	226.42	216.13	205.84	
NEW	61528	-	1.000	1"	25.400	1"	4"	1-1/2"	.125"	-	236.72	226.42	216.13	205.84	
NEW	61530	-	1.000	1"	25.400	1"	4"	1-1/2"	.190"	-	236.72	226.42	216.13	205.84	
NEW	61532	-	1.000	1"	25.400	1"	4"	1-1/2"	.250"	-	236.72	226.42	216.13	205.84	
	28916	28915	1.000	1"	25.400	1"	4"	1-1/2"	BALL	-	236.72	226.42	216.13	205.84	
NEW	61534	-	1.000	1"	25.400	1"	4"	1-5/8"	.030"	-	236.72	226.42	216.13	205.84	
	62895	62897	1.000	1"	25.400	1"	4"	1-3/4"	-	-	196.66	188.11	179.56	171.01	
	28001	28000	1.000	1"	25.400	1"	4"	1-3/4"	.015"	-	236.72	226.42	216.13	205.84	
NEW	61536	-	1.000	1"	25.400	1"	4"	1-3/4"	.030"	-	236.72	226.42	216.13	205.84	
	28011	28012	1.000	1"	25.400	1"	4"	1-3/4"	.060"	-	236.72	226.42	216.13	205.84	
	28021	28022	1.000	1"	25.400	1"	4"	1-3/4"	.090"	-	236.72	226.42	216.13	205.84	
NEW	61538	-	1.000	1"	25.400	1"	4"	1-3/4"	.125"	-	236.72	226.42	216.13	205.84	
NEW	61540	-	1.000	1"	25.400	1"	4"	1-3/4"	.190"	-	236.72	226.42	216.13	205.84	
NEW	61542	-	1.000	1"	25.400	1"	4"	1-3/4"	.250"	-	236.72	226.42	216.13	205.84	
	62905	62907	1.000	1"	25.400	1"	5"	2"	-	-	263.25	251.80	240.36	228.91	
	63369	63368	1.000	1"	25.400	1"	5"	2"	.015"	-	291.25	278.59	265.92	253.26	
	63371	63370	1.000	1"	25.400	1"	5"	2"	.035"	-	291.25	278.59	265.92	253.26	
	63373	63372	1.000	1"	25.400	1"	5"	2"	.060"	-	291.25	278.59	265.92	253.26	
	63375	63374	1.000	1"	25.400	1"	5"	2"	.090"	-	291.25	278.59	265.92	253.26	
NEW	61544	-	1.000	1"	25.400	1"	5"	2"	.125"	-	291.25	278.59	265.92	253.26	
NEW	61546	-	1.000	1"	25.400	1"	5"	2"	.250"	-	291.25	278.59	265.92	253.26	
	28931	28930	1.000	1"	25.400	1"	5"	2"	BALL	-	291.25	278.59	265.92	253.26	
NEW	61548	-	1.000	1"	25.400	1"	5"	2-1/2"	-	-	263.25	251.80	240.36	228.91	
NEW	61550	-	1.000	1"	25.400	1"	5"	2-1/2"	.030"	-	291.25	278.59	265.92	253.26	
	62915	62917	1.000	1"	25.400	1"	6"	3"	-	-	342.90	327.99	313.08	298.17	
NEW	61552	-	1.000	1"	25.400	1"	6"	3-1/4"	.030"	-	379.86	363.34	346.83	330.31	
NEW	61554	-	1.000	1"	25.400	1"	7"	4-1/4"	.030"	-	463.54	443.39	423.23	403.08	
NEW	61556	-	1.000	1"	25.400	1"	7"	4-1/4"	.060"	-	463.54	443.39	423.23	403.08	
NEW	61558	-	1.000	1"	25.400	1"	6"	1-1/4"	.030"	2-5/8"	.980"	393.43	376.32	359.22	342.11
	63381	63380	1.000	1"	25.400	1"	6"	1-1/4"	.035"	3-1/4"	.980"	393.43	376.32	359.22	342.11
NEW	61560	-	1.000	1"	25.400	1"	6"	1-1/4"	.060"	3-1/4"	.980"	393.43	376.32	359.22	342.11
NEW	61562	-	1.000	1"	25.400	1"	7"	1-1/4"	.030"	4-1/4"	.980"	477.11	456.37	435.62	414.88

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MATERIAL HARDNESS (Rc)

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