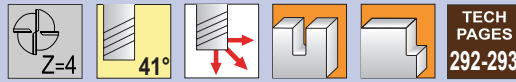


Series VRX **NEW ITEMS** HIGH EFFICIENCY MILLING

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



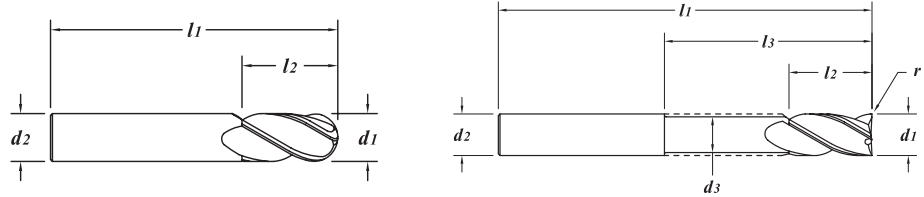
TOLERANCES	
d1	+0.000" - .002" (+.000mm - .050mm)
d2	h6
r	+0.001" - .001" (+.025 - .025mm)

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*



EDP#	(plain) (weldon)	d1 †		d2	l1	l2	r	l3	d3
		Decimal	Metric						
61084	-	.0591	1.500	3.0	38	3.0	-	-	-
61086	-	.0591	1.500	3.0	38	3.0	0.20	-	-
61088	-	.0591	1.500	3.0	38	3.0	BALL	-	-
61090	-	.0591	1.500	3.0	38	6.0	-	-	-
61092	-	.0591	1.500	3.0	38	6.0	0.20	-	-
61094	-	.0591	1.500	3.0	38	6.0	BALL	-	-
61096	-	.0625 1/16"	1.588	1/8"	1-1/2"	1/8"	-	-	-
61098	-	.0625 1/16"	1.588	1/8"	1-1/2"	1/8"	.010"	-	-
61100	-	.0625 1/16"	1.588	1/8"	1-1/2"	1/8"	BALL	-	-
61102	-	.0625 1/16"	1.588	1/8"	1-1/2"	1/4"	-	-	-
61104	-	.0625 1/16"	1.588	1/8"	1-1/2"	1/4"	.010"	-	-
61106	-	.0625 1/16"	1.588	1/8"	1-1/2"	1/4"	BALL	-	-
61108	-	.0787	2.000	3.0	38	4.0	-	-	-
61110	-	.0787	2.000	3.0	38	4.0	0.20	-	-
61112	-	.0787	2.000	3.0	38	4.0	BALL	-	-
61114	-	.0787	2.000	3.0	38	8.0	-	-	-
61116	-	.0787	2.000	3.0	38	8.0	0.20	-	-
61118	-	.0787	2.000	3.0	38	8.0	BALL	-	-
61120	-	.0938 3/32"	2.383	1/8"	1-1/2"	3/16"	-	-	-
61122	-	.0938 3/32"	2.383	1/8"	1-1/2"	3/16"	.010"	-	-
61124	-	.0938 3/32"	2.383	1/8"	1-1/2"	3/16"	BALL	-	-
61126	-	.0938 3/32"	2.383	1/8"	1-1/2"	3/8"	-	-	-
61128	-	.0938 3/32"	2.383	1/8"	1-1/2"	3/8"	.010"	-	-
61130	-	.0938 3/32"	2.383	1/8"	1-1/2"	3/8"	BALL	-	-
61877	-	.1181	3.000	3.0	38	8	-	-	-
27420	-	.1181	3.000	3.0	50	8	0.20	-	-
61132	-	.1181	3.000	3.0	50	8	0.30	-	-
27425	-	.1181	3.000	3.0	50	8	0.50	-	-
61134	-	.1181	3.000	3.0	50	8	BALL	-	-
61887	-	.1181	3.000	3.0	38	12	-	-	-
27430	-	.1181	3.000	3.0	50	12	0.20	-	-
61136	-	.1181	3.000	3.0	50	12	0.30	-	-
27435	-	.1181	3.000	3.0	50	12	0.50	-	-
61138	-	.1181	3.000	3.0	50	12	BALL	-	-

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MATERIAL HARDNESS (Rc)

EDP#	(plain) (weldon)	$d1$ †		$d2$	$l1$	$l2$	$r$	$l3$	$d3$	
		Decimal	Diameter							Metric
61917	-	.1250	1/8"	3.175	1/8"	1-1/2"	1/4"	-	-	-
27440	-	.1250	1/8"	3.175	1/8"	1-1/2"	1/4"	.010"	-	-
61140	-	.1250	1/8"	3.175	1/8"	1-1/2"	1/4"	.015"	-	-
61073	-	.1250	1/8"	3.175	1/8"	1-1/2"	1/4"	.030"	-	-
61142	-	.1250	1/8"	3.175	1/8"	1-1/2"	1/4"	BALL	-	-
61144	-	.1250	1/8"	3.175	1/8"	1-1/2"	3/8"	-	-	-
61146	-	.1250	1/8"	3.175	1/8"	1-1/2"	3/8"	.010"	-	-
61148	-	.1250	1/8"	3.175	1/8"	1-1/2"	3/8"	.015"	-	-
61074	-	.1250	1/8"	3.175	1/8"	1-1/2"	3/8"	.030"	-	-
61149	-	.1250	1/8"	3.175	1/8"	1-1/2"	3/8"	BALL	-	-
61927	-	.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	-	-	-
27450	-	.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	.010"	-	-
61150	-	.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	.015"	-	-
27455	-	.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	.020"	-	-
61075	-	.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	.030"	-	-
61152	-	.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	BALL	-	-
61154	-	.1562	5/32"	3.967	3/16"	2"	5/16"	-	-	-
27460	-	.1562	5/32"	3.967	3/16"	2"	5/16"	.010"	-	-
61156	-	.1562	5/32"	3.967	3/16"	2"	5/16"	.015"	-	-
61076	-	.1562	5/32"	3.967	3/16"	2"	5/16"	.030"	-	-
61077	-	.1562	5/32"	3.967	3/16"	2"	5/16"	BALL	-	-
61158	-	.1562	5/32"	3.967	3/16"	2"	1/2"	-	-	-
27470	-	.1562	5/32"	3.967	3/16"	2"	1/2"	.010"	-	-
61160	-	.1562	5/32"	3.967	3/16"	2"	1/2"	.015"	-	-
61078	-	.1562	5/32"	3.967	3/16"	2"	1/2"	.030"	-	-
61079	-	.1562	5/32"	3.967	3/16"	2"	1/2"	BALL	-	-
61162	-	.1575		4.000	6.0	50	8	-	-	-
27480	-	.1575		4.000	6.0	50	8	0.30	-	-
61164	-	.1575		4.000	6.0	50	8	0.50	-	-
28470	-	.1575		4.000	6.0	50	8	BALL	-	-
61977	-	.1575		4.000	6.0	50	12	-	-	-
27490	-	.1575		4.000	6.0	50	12	0.30	-	-
27495	-	.1575		4.000	6.0	50	12	0.50	-	-
28480	-	.1575		4.000	6.0	50	12	BALL	-	-
61166	-	.1575		4.000	6.0	65	19	-	-	-
61168	-	.1575		4.000	6.0	65	19	0.30	-	-
62007	-	.1875	3/16"	4.763	3/16"	2"	5/16"	-	-	-
27500	-	.1875	3/16"	4.763	3/16"	2"	5/16"	.010"	-	-
61170	-	.1875	3/16"	4.763	3/16"	2"	5/16"	.015"	-	-
61172	-	.1875	3/16"	4.763	3/16"	2"	5/16"	.020"	-	-
28490	-	.1875	3/16"	4.763	3/16"	2"	5/16"	BALL	-	-
61174	-	.1875	3/16"	4.763	3/16"	2"	7/16"	-	-	-
61176	-	.1875	3/16"	4.763	3/16"	2"	7/16"	.010"	-	-
61178	-	.1875	3/16"	4.763	3/16"	2"	7/16"	.015"	-	-
62017	-	.1875	3/16"	4.763	3/16"	2"	9/16"	-	-	-
27520	-	.1875	3/16"	4.763	3/16"	2"	9/16"	.010"	-	-
61180	-	.1875	3/16"	4.763	3/16"	2"	9/16"	.015"	-	-
27521	-	.1875	3/16"	4.763	3/16"	2"	9/16"	.020"	-	-
61182	-	.1875	3/16"	4.763	3/16"	2"	9/16"	.030"	-	-
28500	-	.1875	3/16"	4.763	3/16"	2"	9/16"	BALL	-	-
61184	-	.1875	3/16"	4.763	3/16"	3"	1"	.010"	-	-
61186	-	.1875	3/16"	4.763	3/16"	3"	1-1/4"	.010"	-	-
63100	-	.1875	3/16"	4.763	3/16"	4"	5/16"	.010"	-	-
61188	-	.1969		5.000	6.0	50	10	-	-	-
27522	-	.1969		5.000	6.0	50	10	0.30	-	-
61190	-	.1969		5.000	6.0	50	10	0.50	-	-
28510	-	.1969		5.000	6.0	50	10	BALL	-	-

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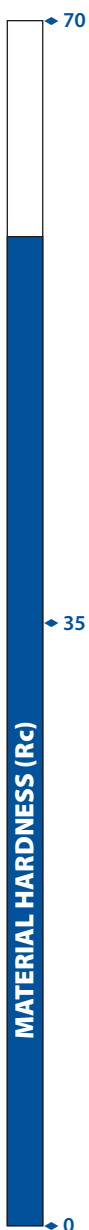
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MATERIAL HARDNESS (Rc)

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	EDP#	
								(plain)	(weldon)
	Decimal	Metric							
62057	-	.1969	5.000	6.0	65	15	-	-	-
27524	-	.1969	5.000	6.0	65	15	0.30	-	-
27526	-	.1969	5.000	6.0	65	15	0.50	-	-
27528	-	.1969	5.000	6.0	65	15	1.00	-	-
28520	-	.1969	5.000	6.0	65	15	BALL	-	-
63110	-	.1969	5.000	6.0	100	10	0.30	-	-
61192	-	.1969	5.000	6.0	100	10	0.30	55	4.70
61194	-	.2188	7/32"	5.558	1/4"	2"	3/8"	-	-
61196	-	.2188	7/32"	5.558	1/4"	2"	3/8"	.010"	-
27525	-	.2188	7/32"	5.558	1/4"	2"	3/8"	.015"	-
61198	-	.2188	7/32"	5.558	1/4"	2"	3/8"	BALL	-
61200	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	-	-
61202	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	.010"	-
27530	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	.015"	-
61204	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	.020"	-
61206	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	BALL	-
61208	-	.2188	7/32"	5.558	1/4"	3"	1-1/4"	.015"	-
63120	-	.2188	7/32"	5.558	1/4"	4"	3/8"	.015"	-
61210	-	.2188	7/32"	5.558	1/4"	4"	3/8"	.015"	2-1/4"
62077	-	.2362	6.000	6.0	50	12	-	-	-
27535	-	.2362	6.000	6.0	50	12	0.30	-	-
61212	-	.2362	6.000	6.0	50	12	0.50	-	-
61214	-	.2362	6.000	6.0	50	12	0.75	-	-
28530	-	.2362	6.000	6.0	50	12	BALL	-	-
62087	-	.2362	6.000	6.0	65	19	-	-	-
61216	-	.2362	6.000	6.0	65	19	0.20	-	-
27540	-	.2362	6.000	6.0	65	19	0.30	-	-
27545	-	.2362	6.000	6.0	65	19	0.50	-	-
61218	-	.2362	6.000	6.0	65	19	0.75	-	-
27547	-	.2362	6.000	6.0	65	19	1.00	-	-
27548	-	.2362	6.000	6.0	65	19	1.50	-	-
28540	-	.2362	6.000	6.0	65	19	BALL	-	-
61220	-	.2362	6.000	6.0	75	26	0.30	-	-
61222	-	.2362	6.000	6.0	75	26	0.50	-	-
61224	-	.2362	6.000	6.0	75	38	0.30	-	-
61226	-	.2362	6.000	6.0	75	38	0.50	-	-
63130	-	.2362	6.000	6.0	100	12	0.30	32	5.70
62137	-	.2500	1/4"	6.350	1/4"	2"	3/8"	-	-
61228	-	.2500	1/4"	6.350	1/4"	2"	3/8"	.010"	-
27560	-	.2500	1/4"	6.350	1/4"	2"	3/8"	.015"	-
61230	-	.2500	1/4"	6.350	1/4"	2"	3/8"	.020"	-
28570	-	.2500	1/4"	6.350	1/4"	2"	3/8"	BALL	-
61232	-	.2500	1/4"	6.350	1/4"	2"	1/2"	-	-
61234	-	.2500	1/4"	6.350	1/4"	2"	1/2"	.015"	-
62147	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	-	-
27570	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.010"	-
27580	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.015"	-
61236	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.020"	-
27581	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.030"	-
61238	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.040"	-
27583	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.060"	-
28580	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	BALL	-



EDP#	<i>d1</i> †	<i>d2</i>	<i>l1</i>	<i>l2</i>	<i>r</i>	<i>l3</i>	<i>d3</i>	Diameter		
								Shank Diameter	Neck Diameter	
(plain)	(weldon)	Decimal	Metric	Overall Length	Flute Length	Corner Radius	Reach Length			
61240	-	.2500	1/4"	6.350	1/4"	3"	1"	.015"	-	-
NEW 61241	-	.2500	1/4"	6.350	1/4"	3"	1-1/8"	.030"	-	-
61242	-	.2500	1/4"	6.350	1/4"	3"	1-1/2"	.015"	-	-
61244	-	.2500	1/4"	6.350	1/4"	4"	3/8"	.015"	3/4"	.240"
63140	-	.2500	1/4"	6.350	1/4"	4"	3/8"	.015"	1-1/4"	.240"
61246	-	.2500	1/4"	6.350	1/4"	4"	3/8"	.015"	2-1/8"	.240"
27585	-	.2756		7.000	8.0	50	12	0.30	-	-
27590	-	.2756		7.000	8.0	65	22	0.30	-	-
61248	-	.2812	9/32"	7.142	5/16"	2"	7/16"	-	-	-
27595	-	.2812	9/32"	7.142	5/16"	2"	7/16"	.015"	-	-
61250	-	.2812	9/32"	7.142	5/16"	2-1/2"	13/16"	-	-	-
61252	-	.2812	9/32"	7.142	5/16"	2-1/2"	13/16"	.010"	-	-
27597	-	.2812	9/32"	7.142	5/16"	2-1/2"	13/16"	.015"	-	-
61254	-	.2812	9/32"	7.142	5/16"	2-1/2"	13/16"	.020"	-	-
63150	-	.2812	9/32"	7.142	5/16"	4"	7/16"	.015"	-	-
62207	-	.3125	5/16"	7.938	5/16"	2"	7/16"	-	-	-
61256	-	.3125	5/16"	7.938	5/16"	2"	7/16"	.010"	-	-
61258	-	.3125	5/16"	7.938	5/16"	2"	7/16"	.015"	-	-
27600	-	.3125	5/16"	7.938	5/16"	2"	7/16"	.020"	-	-
61260	-	.3125	5/16"	7.938	5/16"	2"	7/16"	.030"	-	-
28610	-	.3125	5/16"	7.938	5/16"	2"	7/16"	BALL	-	-
62217	-	.3125	5/16"	7.938	5/16"	2-1/2"	13/16"	-	-	-
27610	-	.3125	5/16"	7.938	5/16"	2-1/2"	13/16"	.010"	-	-
61262	-	.3125	5/16"	7.938	5/16"	2-1/2"	13/16"	.015"	-	-
27620	-	.3125	5/16"	7.938	5/16"	2-1/2"	13/16"	.020"	-	-
27622	-	.3125	5/16"	7.938	5/16"	2-1/2"	13/16"	.030"	-	-
61264	-	.3125	5/16"	7.938	5/16"	2-1/2"	13/16"	.040"	-	-
27624	-	.3125	5/16"	7.938	5/16"	2-1/2"	13/16"	.060"	-	-
28620	-	.3125	5/16"	7.938	5/16"	2-1/2"	13/16"	BALL	-	-
61266	-	.3125	5/16"	7.938	5/16"	3"	1-1/4"	.015"	-	-
63160	-	.3125	5/16"	7.938	5/16"	4"	7/16"	.020"	1-7/8"	.300"
62257	-	.3150		8.000	8.0	50	12	-	-	-
61268	-	.3150		8.000	8.0	50	12	0.30	-	-
27630	-	.3150		8.000	8.0	50	12	0.50	-	-
61270	-	.3150		8.000	8.0	50	12	0.75	-	-
28630	-	.3150		8.000	8.0	50	12	BALL	-	-
62267	-	.3150		8.000	8.0	65	22	-	-	-
27635	-	.3150		8.000	8.0	65	22	0.30	-	-
27640	-	.3150		8.000	8.0	65	22	0.50	-	-
61272	-	.3150		8.000	8.0	65	22	0.75	-	-
27642	-	.3150		8.000	8.0	65	22	1.00	-	-
27643	-	.3150		8.000	8.0	65	22	1.50	-	-
61274	-	.3150		8.000	8.0	65	22	2.00	-	-
28640	-	.3150		8.000	8.0	65	22	BALL	-	-
61276	-	.3150		8.000	8.0	75	38	0.50	-	-
61278	-	.3150		8.000	8.0	100	50	0.50	-	-
63170	-	.3150		8.000	8.0	100	12	0.50	47	7.60
61280	-	.3438	11/32"	8.733	3/8"	2"	1/2"	-	-	-
27645	-	.3438	11/32"	8.733	3/8"	2"	1/2"	.020"	-	-
61282	-	.3438	11/32"	8.733	3/8"	2-1/2"	7/8"	-	-	-
27650	-	.3438	11/32"	8.733	3/8"	2-1/2"	7/8"	.020"	-	-
61284	-	.3438	11/32"	8.733	3/8"	3"	1-1/4"	.015"	-	-

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MATERIAL HARDNESS (Rc)

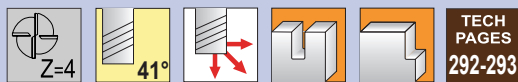
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Series VRX (continued)

HIGH EFFICIENCY MILLING

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

.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

EDP#	(plain) (weldon)	d1 †		d2	l1	l2	r	l3	d3	
		Decimal	Diameter Metric							Shank Diameter
63180	-	.3438	11/32"	8.733	3/8"	4"	1/2"	.020"	-	-
27655	-	.3543		9.000	10.0	50	14	0.50	-	-
62287	-	.3543		9.000	10.0	65	22	-	-	-
27657	-	.3543		9.000	10.0	65	22	0.50	-	-
62317	-	.3750	3/8"	9.525	3/8"	2"	1/2"	-	-	-
27658	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.010"	-	-
61286	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.015"	-	-
27660	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.020"	-	-
27662	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.030"	-	-
61288	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.060"	-	-
28670	-	.3750	3/8"	9.525	3/8"	2"	1/2"	BALL	-	-
62327	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	-	-	-
27670	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.010"	-	-
61290	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.015"	-	-
27680	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.020"	-	-
27682	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.030"	-	-
61292	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.040"	-	-
61294	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.050"	-	-
27684	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.060"	-	-
61296	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.094"	-	-
28680	-	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	BALL	-	-
61298	-	.3750	3/8"	9.525	3/8"	3"	1-1/4"	.015"	-	-
61299	-	.3750	3/8"	9.525	3/8"	3"	1-1/4"	.030"	-	-
61300	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"	.015"	-	-
61302	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"	BALL	-	-
61304	-	.3750	3/8"	9.525	3/8"	4"	2"	.015"	-	-
61306	-	.3750	3/8"	9.525	3/8"	4"	1/2"	.015"	1-1/8"	.360"
63190	-	.3750	3/8"	9.525	3/8"	4"	1/2"	.020"	1-7/8"	.360"
61308	-	.3750	3/8"	9.525	3/8"	4"	1/2"	.015"	2-1/8"	.360"
61310	-	.3750	3/8"	9.525	3/8"	6"	1/2"	.015"	3-1/8"	.360"
61312	-	.3937		10.000	10.0	50	16	-	-	-
27690	-	.3937		10.000	10.0	50	16	0.50	-	-
61314	-	.3937		10.000	10.0	50	16	1.00	-	-
28690	-	.3937		10.000	10.0	50	16	BALL	-	-
62397	-	.3937		10.000	10.0	70	22	-	-	-
27698	-	.3937		10.000	10.0	70	22	0.30	-	-
27700	-	.3937		10.000	10.0	70	22	0.50	-	-
61316	-	.3937		10.000	10.0	70	22	0.75	-	-
27702	-	.3937		10.000	10.0	70	22	1.00	-	-
28700	-	.3937		10.000	10.0	70	22	BALL	-	-
61318	-	.3937		10.000	10.0	70	32	0.50	-	-
61320	-	.3937		10.000	10.0	100	38	0.50	-	-
61322	-	.3937		10.000	10.0	100	50	0.50	-	-
63200	-	.3937		10.000	10.0	100	14	0.50	47	9.50

MATERIAL HARDNESS (Rc) 70 35 0

EDP#		$d_1$ †			$d_2$	$l_1$	$l_2$	$r$	$l_3$	$d_3$
(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"	-	-
28705	-	.4375	7/16"	11.113	7/16"	2-1/2"	5/8"	BALL	-	-
62437	-	.4375	7/16"	11.113	7/16"	2-3/4"	7/8"	-	-	-
27708	-	.4375	7/16"	11.113	7/16"	2-3/4"	7/8"	.010"	-	-
27710	-	.4375	7/16"	11.113	7/16"	2-3/4"	7/8"	.020"	-	-
28710	-	.4375	7/16"	11.113	7/16"	2-3/4"	7/8"	BALL	-	-
63210	-	.4375	7/16"	11.113	7/16"	6"	1"	.020"	-	-
62475	-	.4724		12.000	12.0	65	19	-	-	-
27712	-	.4724		12.000	12.0	65	19	0.30	-	-
27715	-	.4724		12.000	12.0	65	19	0.50	-	-
28715	-	.4724		12.000	12.0	65	19	BALL	-	-
61324	-	.4724		12.000	12.0	75	26	-	-	-
61326	-	.4724		12.000	12.0	75	26	0.50	-	-
62485	-	.4724		12.000	12.0	75	32	-	-	-
27718	-	.4724		12.000	12.0	75	32	0.30	-	-
27720	-	.4724		12.000	12.0	75	32	0.50	-	-
61328	-	.4724		12.000	12.0	75	32	0.75	-	-
27722	-	.4724		12.000	12.0	75	32	1.00	-	-
27730	-	.4724		12.000	12.0	75	32	1.50	-	-
27735	-	.4724		12.000	12.0	75	32	2.00	-	-
61330	-	.4724		12.000	12.0	75	32	3.00	-	-
28720	-	.4724		12.000	12.0	75	32	BALL	-	-
61332	-	.4724		12.000	12.0	100	38	-	-	-
61334	-	.4724		12.000	12.0	100	38	0.50	-	-
61336	-	.4724		12.000	12.0	100	42	-	-	-
61338	-	.4724		12.000	12.0	100	42	0.50	-	-
61340	-	.4724		12.000	12.0	100	52	-	-	-
61342	-	.4724		12.000	12.0	100	52	0.50	-	-
63220	-	.4724		12.000	12.0	150	19	0.50	57	11.50
62525	62527	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	-	-	-
27739	27738	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.010"	-	-
61344	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.015"	-	-
27741	27740	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.020"	-	-
27743	27742	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.030"	-	-
61346	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.060"	-	-
28751	28750	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	BALL	-	-
61348	-	.5000	1/2"	12.700	1/2"	3"	1"	-	-	-
61350	-	.5000	1/2"	12.700	1/2"	3"	1"	.015"	-	-
61352	-	.5000	1/2"	12.700	1/2"	3"	1"	.030"	-	-
61354	-	.5000	1/2"	12.700	1/2"	3"	1"	.060"	-	-
61356	-	.5000	1/2"	12.700	1/2"	3"	1"	.125"	-	-
61358	-	.5000	1/2"	12.700	1/2"	3"	1"	BALL	-	-
62535	62537	.5000	1/2"	12.700	1/2"	3"	1-1/4"	-	-	-
27751	27750	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.010"	-	-
61360	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.015"	-	-
27761	27760	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.020"	-	-
27763	27762	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.030"	-	-
61362	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.040"	-	-
61364	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.050"	-	-
27767	27764	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.060"	-	-
61366	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.078"	-	-
63398	63399	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.090"	-	-

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MATERIAL HARDNESS (Rc)

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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
(plain)	(weldon)	Decimal	Metric						
61368	-	.5000	12.700	1/2"	3"	1-1/4"	.094"	-	-
61370	-	.5000	12.700	1/2"	3"	1-1/4"	.100"	-	-
27769	27768	.5000	12.700	1/2"	3"	1-1/4"	.120"	-	-
61372	-	.5000	12.700	1/2"	3"	1-1/4"	.125"	-	-
28761	28760	.5000	12.700	1/2"	3"	1-1/4"	BALL	-	-
28771	28770	.5000	12.700	1/2"	4"	5/8"	BALL	-	-
61374	-	.5000	12.700	1/2"	4"	1-1/2"	-	-	-
63401	63400	.5000	12.700	1/2"	4"	1-1/2"	.010"	-	-
61376	-	.5000	12.700	1/2"	4"	1-1/2"	.015"	-	-
63411	63410	.5000	12.700	1/2"	4"	1-1/2"	.030"	-	-
63421	63420	.5000	12.700	1/2"	4"	1-1/2"	.060"	-	-
63424	-	.5000	12.700	1/2"	4"	1-1/2"	.125"	-	-
61378	-	.5000	12.700	1/2"	4"	1-1/2"	BALL	-	-
61380	-	.5000	12.700	1/2"	4"	1-5/8"	.015"	-	-
61382	-	.5000	12.700	1/2"	4"	1-3/4"	.015"	-	-
62565	62567	.5000	12.700	1/2"	4"	2"	-	-	-
63431	63430	.5000	12.700	1/2"	4"	2"	.010"	-	-
61384	-	.5000	12.700	1/2"	4"	2"	.015"	-	-
63441	63440	.5000	12.700	1/2"	4"	2"	.030"	-	-
63451	63450	.5000	12.700	1/2"	4"	2"	.060"	-	-
61386	-	.5000	12.700	1/2"	4"	2-1/8"	.015"	-	-
63241	63240	.5000	12.700	1/2"	6"	2"	.020"	-	-
61388	-	.5000	12.700	1/2"	6"	2-1/2"	.015"	-	-
61390	-	.5000	12.700	1/2"	6"	2-1/2"	.030"	-	-
61392	-	.5000	12.700	1/2"	6"	3-1/4"	.030"	-	-
61394	-	.5000	12.700	1/2"	4"	5/8"	.015"	1-1/2"	.480"
61396	-	.5000	12.700	1/2"	4"	5/8"	.015"	2-1/4"	.480"
63231	63230	.5000	12.700	1/2"	4"	5/8"	.020"	2-1/4"	.480"
61398	-	.5000	12.700	1/2"	6"	5/8"	.015"	3-3/8"	.480"
61400	-	.5000	12.700	1/2"	6"	5/8"	.015"	4-1/8"	.480"
27766	27765	.5512	14.000	14.0	75	19	0.50	-	-
28781	28780	.5512	14.000	14.0	75	19	BALL	-	-
27771	27770	.5512	14.000	14.0	88	32	0.50	-	-
28786	28785	.5512	14.000	14.0	88	32	BALL	-	-
63261	63260	.5512	14.000	14.0	150	50	0.50	-	-
63251	-	.5512	14.000	14.0	150	19	0.50	57	13.50
62625	62627	.5625	14.288	9/16"	3-1/2"	1-1/4"	-	-	-
61402	-	.6250	15.875	5/8"	3"	3/4"	-	-	-
63461	63460	.6250	15.875	5/8"	3"	3/4"	.010"	-	-
61404	-	.6250	15.875	5/8"	3"	3/4"	.015"	-	-
27781	27780	.6250	15.875	5/8"	3"	3/4"	.025"	-	-
61406	-	.6250	15.875	5/8"	3"	3/4"	.060"	-	-
28796	28795	.6250	15.875	5/8"	3"	3/4"	BALL	-	-
62655	62657	.6250	15.875	5/8"	3-1/2"	1-1/4"	-	-	-
27791	27790	.6250	15.875	5/8"	3-1/2"	1-1/4"	.010"	-	-
61408	-	.6250	15.875	5/8"	3-1/2"	1-1/4"	.015"	-	-
61410	-	.6250	15.875	5/8"	3-1/2"	1-1/4"	.020"	-	-
27801	27800	.6250	15.875	5/8"	3-1/2"	1-1/4"	.025"	-	-
61412	-	.6250	15.875	5/8"	3-1/2"	1-1/4"	.030"	-	-
61414	-	.6250	15.875	5/8"	3-1/2"	1-1/4"	.040"	-	-
27803	27802	.6250	15.875	5/8"	3-1/2"	1-1/4"	.060"	-	-
61416	-	.6250	15.875	5/8"	3-1/2"	1-1/4"	.078"	-	-
61418	-	.6250	15.875	5/8"	3-1/2"	1-1/4"	.094"	-	-
27805	27804	.6250	15.875	5/8"	3-1/2"	1-1/4"	.120"	-	-
61420	-	.6250	15.875	5/8"	3-1/2"	1-1/4"	.125"	-	-
28801	28800	.6250	15.875	5/8"	3-1/2"	1-1/4"	BALL	-	-

MATERIAL HARDNESS (Rc)

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EDP#	(plain) (weldon)	$d1$ †		$d2$	$l1$	$l2$	$r$	$l3$	$d3$	
		Decimal	Diameter							Metric
61422	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	-	-	-
63501	63500	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.010"	-	-
61424	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.015"	-	-
63511	63510	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.030"	-	-
63521	63520	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.060"	-	-
61426	-	.6250	5/8"	15.875	5/8"	4"	1-5/8"	-	-	-
61428	-	.6250	5/8"	15.875	5/8"	4"	1-5/8"	.015"	-	-
61430	-	.6250	5/8"	15.875	5/8"	4"	1-5/8"	.030"	-	-
61432	-	.6250	5/8"	15.875	5/8"	4"	1-5/8"	.060"	-	-
62675	62677	.6250	5/8"	15.875	5/8"	4"	1-3/4"	-	-	-
63531	63530	.6250	5/8"	15.875	5/8"	4"	1-3/4"	.010"	-	-
63541	63540	.6250	5/8"	15.875	5/8"	4"	1-3/4"	.030"	-	-
63551	63550	.6250	5/8"	15.875	5/8"	4"	1-3/4"	.060"	-	-
63281	63280	.6250	5/8"	15.875	5/8"	6"	2"	.025"	-	-
63283	-	.6250	5/8"	15.875	5/8"	6"	2"	.090"	-	-
63285	-	.6250	5/8"	15.875	5/8"	6"	2"	.125"	-	-
28806	28805	.6250	5/8"	15.875	5/8"	6"	2"	BALL	-	-
61434	-	.6250	5/8"	15.875	5/8"	6"	2-1/2"	.030"	-	-
61436	-	.6250	5/8"	15.875	5/8"	6"	3-1/4"	.030"	-	-
61438	-	.6250	5/8"	15.875	5/8"	4"	3/4"	.030"	1-5/8"	.600"
61440	-	.6250	5/8"	15.875	5/8"	6"	3/4"	.030"	2-3/8"	.600"
63271	63270	.6250	5/8"	15.875	5/8"	6"	3/4"	.025"	3-1/4"	.600"
61442	-	.6250	5/8"	15.875	5/8"	6"	3/4"	.030"	4-1/8"	.600"
61444	-	.6299		16.000	16.0	75	19	-	-	-
27809	-	.6299		16.000	16.0	75	19	0.30	-	-
27811	27810	.6299		16.000	16.0	75	19	0.50	-	-
61446	-	.6299		16.000	16.0	75	19	1.00	-	-
28811	28810	.6299		16.000	16.0	75	19	BALL	-	-
62715	62717	.6299		16.000	16.0	88	32	-	-	-
27819	27818	.6299		16.000	16.0	88	32	0.30	-	-
27821	27820	.6299		16.000	16.0	88	32	0.50	-	-
61448	-	.6299		16.000	16.0	88	32	0.75	-	-
27823	27822	.6299		16.000	16.0	88	32	1.00	-	-
61450	-	.6299		16.000	16.0	88	32	1.50	-	-
27825	27824	.6299		16.000	16.0	88	32	2.00	-	-
61452	-	.6299		16.000	16.0	88	32	3.00	-	-
28821	28820	.6299		16.000	16.0	88	32	BALL	-	-
63581	63580	.6299		16.000	16.0	100	38	0.30	-	-
61454	-	.6299		16.000	16.0	100	38	0.50	-	-
61456	-	.6299		16.000	16.0	100	42	0.50	-	-
63291	63290	.6299		16.000	16.0	150	19	0.50	82	15.25
27831	-	.7087		18.000	18.0	75	22	0.80	-	-
28831	-	.7087		18.000	18.0	75	22	BALL	-	-
27836	27835	.7087		18.000	18.0	100	38	0.80	-	-
28836	28835	.7087		18.000	18.0	100	38	BALL	-	-
63301	-	.7087		18.000	18.0	150	25	0.80	82	17.25
61458	-	.7500	3/4"	19.050	3/4"	3"	7/8"	-	-	-
27841	27840	.7500	3/4"	19.050	3/4"	3"	7/8"	.030"	-	-
61460	-	.7500	3/4"	19.050	3/4"	3"	7/8"	.060"	-	-
28841	28840	.7500	3/4"	19.050	3/4"	3"	7/8"	BALL	-	-
61462	-	.7500	3/4"	19.050	3/4"	4"	1-1/4"	-	-	-
61464	-	.7500	3/4"	19.050	3/4"	4"	1-1/4"	.030"	-	-
62775	62777	.7500	3/4"	19.050	3/4"	4"	1-1/2"	-	-	-
27851	27850	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.015"	-	-
27861	27860	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.030"	-	-
27865	27864	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.060"	-	-
27867	27866	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.120"	-	-
28861	28860	.7500	3/4"	19.050	3/4"	4"	1-1/2"	BALL	-	-

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MATERIAL HARDNESS (Rc)

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Series VRX (continued)

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

EDP#		d1 † Diameter			d2 Shank Diameter	l1 Overall Length	l2 Flute Length	r Corner Radius	l3 Reach Length	d3 Neck Diameter
(plain)	(weldon)	Decimal		Metric						
61466	-	.7500	3/4"	19.050	3/4"	4"	1-5/8"	-	-	-
61468	-	.7500	3/4"	19.050	3/4"	4"	1-5/8"	.015"	-	-
61470	-	.7500	3/4"	19.050	3/4"	4"	1-5/8"	.030"	-	-
61472	-	.7500	3/4"	19.050	3/4"	4"	1-5/8"	.060"	-	-
61474	-	.7500	3/4"	19.050	3/4"	4"	1-5/8"	BALL	-	-
62785	62787	.7500	3/4"	19.050	3/4"	4"	1-3/4"	-	-	-
63601	63600	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.015"	-	-
27869	27868	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.030"	-	-
63611	63610	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.060"	-	-
61476	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.094"	-	-
63621	63620	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.120"	-	-
61478	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.190"	-	-
61480	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	BALL	-	-
62795	62797	.7500	3/4"	19.050	3/4"	5"	2"	-	-	-
63631	63630	.7500	3/4"	19.050	3/4"	5"	2"	.015"	-	-
63311	63310	.7500	3/4"	19.050	3/4"	5"	2"	.030"	-	-
63641	63640	.7500	3/4"	19.050	3/4"	5"	2"	.060"	-	-
61482	-	.7500	3/4"	19.050	3/4"	5"	2"	.094"	-	-
61484	-	.7500	3/4"	19.050	3/4"	5"	2"	.125"	-	-
28866	28865	.7500	3/4"	19.050	3/4"	5"	2"	BALL	-	-
61486	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	-	-	-
61488	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.030"	-	-
62805	62807	.7500	3/4"	19.050	3/4"	6"	3"	-	-	-
63651	63650	.7500	3/4"	19.050	3/4"	6"	3"	.015"	-	-
63661	63660	.7500	3/4"	19.050	3/4"	6"	3"	.030"	-	-
63671	63670	.7500	3/4"	19.050	3/4"	6"	3"	.060"	-	-
61490	-	.7500	3/4"	19.050	3/4"	6"	3-1/4"	-	-	-
61492	-	.7500	3/4"	19.050	3/4"	6"	3-1/4"	.030"	-	-
61494	-	.7500	3/4"	19.050	3/4"	7"	4-1/4"	-	-	-
61496	-	.7500	3/4"	19.050	3/4"	7"	4-1/4"	.030"	-	-
63321	63320	.7500	3/4"	19.050	3/4"	6"	1"	.030"	3-1/4"	.730"
63323	-	.7500	3/4"	19.050	3/4"	6"	1"	.060"	3-1/4"	.730"
63325	-	.7500	3/4"	19.050	3/4"	6"	1"	.090"	3-1/4"	.730"
63327	-	.7500	3/4"	19.050	3/4"	6"	1"	.125"	3-1/4"	.730"
63329	-	.7500	3/4"	19.050	3/4"	6"	1"	.190"	3-1/4"	.730"
61498	-	.7874		20.000	20.0	75	22	-	-	-
61500	-	.7874		20.000	20.0	75	22	0.50	-	-
27871	27870	.7874		20.000	20.0	75	22	1.00	-	-
28871	28870	.7874		20.000	20.0	75	22	BALL	-	-
62825	62827	.7874		20.000	20.0	100	38	-	-	-
27879	27878	.7874		20.000	20.0	100	38	0.50	-	-
61502	-	.7874		20.000	20.0	100	38	0.75	-	-
27881	27880	.7874		20.000	20.0	100	38	1.00	-	-
27891	27890	.7874		20.000	20.0	100	38	1.50	-	-
61504	-	.7874		20.000	20.0	100	38	3.00	-	-
28881	28880	.7874		20.000	20.0	100	38	BALL	-	-
61506	-	.7874		20.000	20.0	100	42	0.50	-	-
61508	-	.7874		20.000	20.0	125	52	0.50	-	-
63331	63330	.7874		20.000	20.0	150	25	1.00	82	19.30
27911	-	.8661		22.000	22.0	100	38	1.00	-	-

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MATERIAL HARDNESS (Rc)

NEW

	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
	(plain)	(weldon)	Decimal	Metric						
	61510	-	.9843	25.000	25.0	100	26	-	-	-
NEW	61512	-	.9843	25.000	25.0	100	26	0.50	-	-
	62855	62857	.9843	25.000	25.0	100	38	-	-	-
	61514	-	.9843	25.000	25.0	100	38	0.50	-	-
	27941	27940	.9843	25.000	25.0	100	38	1.00	-	-
	27951	-	.9843	25.000	25.0	100	38	1.50	-	-
NEW	61516	-	.9843	25.000	25.0	100	38	3.00	-	-
	28901	28900	.9843	25.000	25.0	100	38	BALL	-	-
	61518	-	.9843	25.000	25.0	100	42	-	-	-
NEW	61520	-	.9843	25.000	25.0	100	42	0.50	-	-
	61522	-	.9843	25.000	25.0	125	50	0.50	-	-
	63351	63350	.9843	25.000	25.0	125	50	1.00	-	-
	63361	63360	.9843	25.000	25.0	150	32	1.00	82	24.40
	61524	-	1.000	1"	25.400	1"	4"	1"	-	-
	27959	27958	1.000	1"	25.400	1"	4"	1"	.015"	-
	27961	27960	1.000	1"	25.400	1"	4"	1"	.035"	-
	-	27962	1.000	1"	25.400	1"	4"	1"	.060"	-
	28911	28910	1.000	1"	25.400	1"	4"	1"	BALL	-
	62885	62887	1.000	1"	25.400	1"	4"	1-1/2"	-	-
	27967	27966	1.000	1"	25.400	1"	4"	1-1/2"	.015"	-
	61526	-	1.000	1"	25.400	1"	4"	1-1/2"	.025"	-
	27971	27970	1.000	1"	25.400	1"	4"	1-1/2"	.035"	-
	27981	27980	1.000	1"	25.400	1"	4"	1-1/2"	.060"	-
	27991	-	1.000	1"	25.400	1"	4"	1-1/2"	.090"	-
	61528	-	1.000	1"	25.400	1"	4"	1-1/2"	.125"	-
	61530	-	1.000	1"	25.400	1"	4"	1-1/2"	.190"	-
	61532	-	1.000	1"	25.400	1"	4"	1-1/2"	.250"	-
	28916	28915	1.000	1"	25.400	1"	4"	1-1/2"	BALL	-
	61534	-	1.000	1"	25.400	1"	4"	1-5/8"	.030"	-
	62895	62897	1.000	1"	25.400	1"	4"	1-3/4"	-	-
	28001	28000	1.000	1"	25.400	1"	4"	1-3/4"	.015"	-
	61536	-	1.000	1"	25.400	1"	4"	1-3/4"	.030"	-
	28011	28012	1.000	1"	25.400	1"	4"	1-3/4"	.060"	-
	28021	-	1.000	1"	25.400	1"	4"	1-3/4"	.090"	-
	61538	-	1.000	1"	25.400	1"	4"	1-3/4"	.125"	-
NEW	61540	-	1.000	1"	25.400	1"	4"	1-3/4"	.190"	-
NEW	61542	-	1.000	1"	25.400	1"	4"	1-3/4"	.250"	-
	62905	62907	1.000	1"	25.400	1"	5"	2"	-	-
	63369	63368	1.000	1"	25.400	1"	5"	2"	.015"	-
	63371	63370	1.000	1"	25.400	1"	5"	2"	.035"	-
	63373	63372	1.000	1"	25.400	1"	5"	2"	.060"	-
	63375	63374	1.000	1"	25.400	1"	5"	2"	.090"	-
	61544	-	1.000	1"	25.400	1"	5"	2"	.125"	-
	61546	-	1.000	1"	25.400	1"	5"	2"	.250"	-
	28931	28930	1.000	1"	25.400	1"	5"	2"	BALL	-
	61548	-	1.000	1"	25.400	1"	5"	2-1/2"	-	-
	61550	-	1.000	1"	25.400	1"	5"	2-1/2"	.030"	-
	62915	62917	1.000	1"	25.400	1"	6"	3"	-	-
	61552	-	1.000	1"	25.400	1"	6"	3-1/4"	.030"	-
	61554	-	1.000	1"	25.400	1"	7"	4-1/4"	.030"	-
	61556	-	1.000	1"	25.400	1"	7"	4-1/4"	.060"	-
NEW	61558	-	1.000	1"	25.400	1"	6"	1-1/4"	.030"	2-5/8"
	63381	63380	1.000	1"	25.400	1"	6"	1-1/4"	.035"	3-1/4"
NEW	61560	-	1.000	1"	25.400	1"	6"	1-1/4"	.060"	3-1/4"
	61562	-	1.000	1"	25.400	1"	7"	1-1/4"	.030"	4-1/4"

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MATERIAL HARDNESS (Rc)

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