Series V4S, V4R, V4B

SERIES HIGHLIGHT

MATERIAL HARDNESS (Rc)

70

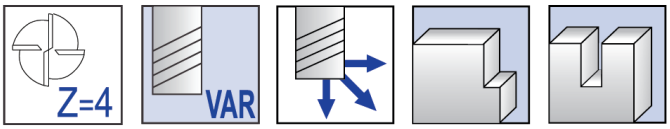
35

0

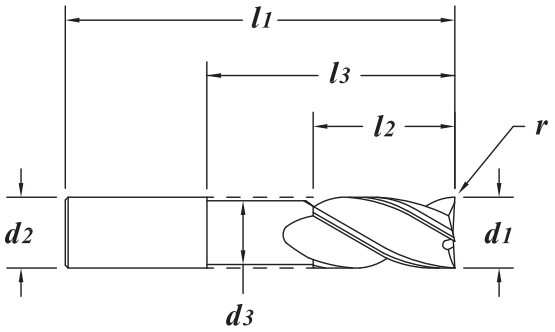
S M P K

High Performance End Mills
AlCrN Coating

Target Materials:
Titanium
Inconel
Stainless Steel



CALCULATE IDEAL PARAMETERS FOR THE V4S, V4R, AND V4B IN YOUR APPLICATION WITH THE GARR TECHNICAL ADVISOR



View the V4S, V4R, V4B

TOLERANCES	
d_1	+.000" –.002" (+.000mm –.050mm)
d_2	h6
r	+.001" –.001" (+.025 –.025mm)
ball radius	+.000" –.001" (+.000 –.025mm)

Z=4 VAR

TECH PAGES 310-311

Series V4S, V4R, V4B

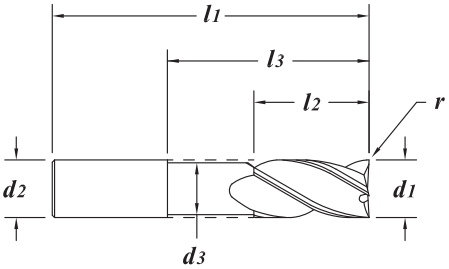
.1562" - .2188"
(3.967mm - 5.558mm)

Recommended for titanium, inconel, and stainless steel

Variable Helix End Mill

AlCrN Coating

Solid submicron grain carbide end mill - center cutting
Engineered for High Efficiency Milling
Helix geometry varies over length of flutes
Variable flute design helps with chip evacuation in slots and pockets
Variable rake aids in chip formation
PCT (Polish Carbide Treatment) enhances tool life
Minimizes burr on part
Smaller diameters can be modified with a flat within 48 hours
The combination of an extended flute length with a weldon flat may cause the flute washout to reach inside some end mill holders



EDP# (plain)	EDP# (weldon)	d_1 † Decimal	d_1 † Diameter	d_1 † Metric	d_2 Shank Diameter	l_1 Overall Length	l_2 Flute Length	r Corner Radius	l_3 Reach Length	d_3 Neck Diameter
50171	-	.1562	5/32"	3.967	1/4"	2"	1/2"	-	-	-
50172	-	.1562	5/32"	3.967	1/4"	2"	1/2"	.010"	-	-
50173	-	.1562	5/32"	3.967	1/4"	2"	1/2"	.015"	-	-
50174	-	.1562	5/32"	3.967	1/4"	2"	1/2"	.020"	-	-
50175	-	.1562	5/32"	3.967	1/4"	2"	1/2"	.030"	-	-
50176	-	.1562	5/32"	3.967	1/4"	2"	1/2"	BALL	-	-
50177	-	.1575		4.000	6.0	50	12	-	-	-
50178	-	.1575		4.000	6.0	50	12	0.20	-	-
50179	-	.1575		4.000	6.0	50	12	0.30	-	-
50180	-	.1575		4.000	6.0	50	12	0.50	-	-
50181	-	.1575		4.000	6.0	50	12	BALL	-	-
50182	-	.1875	3/16"	4.763	1/4"	2"	1/2"	-	-	-
50183	-	.1875	3/16"	4.763	1/4"	2"	1/2"	.010"	-	-
50184	-	.1875	3/16"	4.763	1/4"	2"	1/2"	.015"	-	-
50185	-	.1875	3/16"	4.763	1/4"	2"	1/2"	.020"	-	-
50186	-	.1875	3/16"	4.763	1/4"	2"	1/2"	.030"	-	-
50187	-	.1875	3/16"	4.763	1/4"	2"	1/2"	BALL	-	-
50188	-	.1969		5.000	6.0	65	20	-	-	-
50189	-	.1969		5.000	6.0	65	20	0.20	-	-
50190	-	.1969		5.000	6.0	65	20	0.30	-	-
50191	-	.1969		5.000	6.0	65	20	0.50	-	-
50192	-	.1969		5.000	6.0	65	20	BALL	-	-
50193	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	-	-	-
50194	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	.010"	-	-
50195	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	.015"	-	-
50196	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	.020"	-	-
50197	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	.030"	-	-
50198	-	.2188	7/32"	5.558	1/4"	2-1/2"	3/4"	BALL	-	-

MATERIAL HARDNESS (Rc): 70 – 35 – 0

continued →

Series V4S, V4R, V4B *(continued)*

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

EDP# (plain)	EDP# (weldon)	d_1 † Diameter Decimal	Diameter	Metric	d_2 Shank Diameter	l_1 Overall Length	l_2 Flute Length	r Corner Radius	l_3 Reach Length	d_3 Neck Diameter
50236	-	.2362		6.000	6.0	65	12	-	-	-
50199	-	.2362		6.000	6.0	65	12	0.30	-	-
50200	-	.2362		6.000	6.0	65	12	0.50	-	-
50201	-	.2362		6.000	6.0	65	12	0.75	-	-
50202	-	.2362		6.000	6.0	65	12	1.00	-	-
50203	-	.2362		6.000	6.0	65	12	1.50	-	-
50252	-	.2362		6.000	6.0	65	12	BALL	-	-
50237	-	.2362		6.000	6.0	65	19	-	-	-
50204	-	.2362		6.000	6.0	65	19	0.30	-	-
50205	-	.2362		6.000	6.0	65	19	0.50	-	-
50206	-	.2362		6.000	6.0	65	19	1.00	-	-
50253	-	.2362		6.000	6.0	65	19	BALL	-	-
50540	-	.2500	1/4"	6.350	1/4"	2"	3/8"	-	-	-
50489	-	.2500	1/4"	6.350	1/4"	2"	3/8"	.010"	-	-
50490	-	.2500	1/4"	6.350	1/4"	2"	3/8"	.015"	-	-
50491	-	.2500	1/4"	6.350	1/4"	2"	3/8"	.020"	-	-
50708	-	.2500	1/4"	6.350	1/4"	2"	3/8"	.030"	-	-
50709	-	.2500	1/4"	6.350	1/4"	2"	3/8"	.040"	-	-
50710	-	.2500	1/4"	6.350	1/4"	2"	3/8"	.060"	-	-
50711	-	.2500	1/4"	6.350	1/4"	2"	3/8"	.090"	-	-
50560	-	.2500	1/4"	6.350	1/4"	2"	3/8"	BALL	-	-
50645	-	.2500	1/4"	6.350	1/4"	2"	1/2"	-	-	-
50614	-	.2500	1/4"	6.350	1/4"	2"	1/2"	.010"	-	-
50616	-	.2500	1/4"	6.350	1/4"	2"	1/2"	.015"	-	-
50618	-	.2500	1/4"	6.350	1/4"	2"	1/2"	.020"	-	-
50712	-	.2500	1/4"	6.350	1/4"	2"	1/2"	.030"	-	-
50713	-	.2500	1/4"	6.350	1/4"	2"	1/2"	.040"	-	-
50714	-	.2500	1/4"	6.350	1/4"	2"	1/2"	.060"	-	-
50715	-	.2500	1/4"	6.350	1/4"	2"	1/2"	.090"	-	-
50238	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	-	-	-
50207	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.010"	-	-
50208	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.015"	-	-
50620	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.020"	-	-
50209	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.030"	-	-
50716	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.040"	-	-
50210	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.060"	-	-
50717	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.090"	-	-
50254	-	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	BALL	-	-
50653	-	.2500	1/4"	6.350	1/4"	3"	1-1/8"	-	-	-
50493	-	.2500	1/4"	6.350	1/4"	3"	1-1/8"	.030"	-	-
50677	-	.2500	1/4"	6.350	1/4"	3"	1-1/8"	BALL	-	-

MATERIAL HARDNESS (Rc)
70
35
0

† *Metric equivalents are for reference only*

EDP# (plain)	EDP# (weldon)	d_1 † Diameter Decimal	d_1 † Diameter	d_1 † Diameter Metric	d_2 Shank Diameter	l_1 Overall Length	l_2 Flute Length	r Corner Radius	l_3 Reach Length	d_3 Neck Diameter
50654	-	.2500	1/4"	6.350	1/4"	4"	1-1/2"	-	-	-
50681	-	.2500	1/4"	6.350	1/4"	4"	1-1/2"	BALL	-	-
50655	-	.2500	1/4"	6.350	1/4"	4"	1-3/4"	-	-	-
50718	-	.2500	1/4"	6.350	1/4"	4"	1-3/4"	.020"	-	-
50682	-	.2500	1/4"	6.350	1/4"	4"	1-3/4"	BALL	-	-
50656	-	.2500	1/4"	6.350	1/4"	4"	2"	-	-	-
50683	-	.2500	1/4"	6.350	1/4"	4"	2"	BALL	-	-
50651	-	.2500	1/4"	6.350	1/4"	3"	3/8"	-	1-1/8"	.237"
50678	-	.2500	1/4"	6.350	1/4"	3"	3/8"	BALL	1-1/8"	.237"
50600	-	.2500	1/4"	6.350	1/4"	4"	3/8"	-	1-1/8"	.237"
50211	-	.2500	1/4"	6.350	1/4"	4"	3/8"	.015"	1-1/4"	.230"
50474	-	.2500	1/4"	6.350	1/4"	4"	3/8"	BALL	1-1/8"	.237"
50679	-	.2500	1/4"	6.350	1/4"	4"	3/8"	BALL	1-1/2"	.237"
50652	-	.2500	1/4"	6.350	1/4"	4"	3/8"	-	2"	.237"
50680	-	.2500	1/4"	6.350	1/4"	4"	3/8"	BALL	2"	.237"
50719	-	.2500	1/4"	6.350	1/4"	6"	3/8"	.010"	4"	.230"
50684	-	.2500	1/4"	6.350	1/4"	6"	3/8"	BALL	4"	.230"
50720	-	.3125	5/16"	7.937	5/16"	2"	3/8"	.030"	-	-
50541	-	.3125	5/16"	7.937	5/16"	2"	7/16"	-	-	-
50622	-	.3125	5/16"	7.937	5/16"	2"	7/16"	.010"	-	-
50624	-	.3125	5/16"	7.937	5/16"	2"	7/16"	.015"	-	-
50492	-	.3125	5/16"	7.937	5/16"	2"	7/16"	.020"	-	-
50721	-	.3125	5/16"	7.937	5/16"	2"	7/16"	.125"	-	-
50561	-	.3125	5/16"	7.937	5/16"	2"	7/16"	BALL	-	-
50239	-	.3125	5/16"	7.937	5/16"	2-1/2"	13/16"	-	-	-
50626	-	.3125	5/16"	7.937	5/16"	2-1/2"	13/16"	.010"	-	-
50628	-	.3125	5/16"	7.937	5/16"	2-1/2"	13/16"	.015"	-	-
50212	-	.3125	5/16"	7.937	5/16"	2-1/2"	13/16"	.020"	-	-
50213	-	.3125	5/16"	7.937	5/16"	2-1/2"	13/16"	.030"	-	-
50722	-	.3125	5/16"	7.937	5/16"	2-1/2"	13/16"	.060"	-	-
50723	-	.3125	5/16"	7.937	5/16"	2-1/2"	13/16"	.125"	-	-
50255	-	.3125	5/16"	7.937	5/16"	2-1/2"	13/16"	BALL	-	-
50657	-	.3125	5/16"	7.937	5/16"	3"	1-1/4"	-	-	-
50724	-	.3125	5/16"	7.937	5/16"	3"	1-1/4"	.015"	-	-
50725	-	.3125	5/16"	7.937	5/16"	3"	1-1/4"	.030"	-	-
50726	-	.3125	5/16"	7.937	5/16"	3"	1-1/4"	.060"	-	-
50685	-	.3125	5/16"	7.937	5/16"	3"	1-1/4"	BALL	-	-
50658	-	.3125	5/16"	7.937	5/16"	3"	7/16"	-	1-1/2"	.295"
50686	-	.3125	5/16"	7.937	5/16"	3"	7/16"	BALL	1-1/2"	.295"
50602	-	.3150		8.000	8.0	50	12	-	-	-
50630	-	.3150		8.000	8.0	50	12	0.50	-	-
50240	-	.3150		8.000	8.0	65	22	-	-	-
50214	-	.3150		8.000	8.0	65	22	0.50	-	-
50356	-	.3150		8.000	8.0	65	22	0.75	-	-
50215	-	.3150		8.000	8.0	65	22	1.00	-	-
50727	-	.3150		8.000	8.0	65	22	1.20	-	-
50357	-	.3150		8.000	8.0	65	22	1.50	-	-
50358	-	.3150		8.000	8.0	65	22	2.00	-	-
50728	-	.3150		8.000	8.0	65	22	3.00	-	-
50256	-	.3150		8.000	8.0	65	22	BALL	-	-

continued →

Series V4S, V4R, V4B *(continued)*

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

EDP# (plain)	EDP# (weldon)	d_1 † Diameter Decimal	d_1 † Diameter	d_1 † Diameter Metric	d_2 Shank Diameter	l_1 Overall Length	l_2 Flute Length	r Corner Radius	l_3 Reach Length	d_3 Neck Diameter
50659	-	.3150		8.000	8.0	75	32	-	-	-
50687	-	.3150		8.000	8.0	75	32	BALL	-	-
50660	-	.3150		8.000	8.0	100	12	-	50	7.50
50688	-	.3150		8.000	8.0	100	12	BALL	50	7.50
50542	-	.3750	3/8"	9.525	3/8"	2"	1/2"	-	-	-
50632	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.010"	-	-
50729	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.015"	-	-
50494	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.020"	-	-
50634	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.030"	-	-
50730	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.060"	-	-
50732	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.090"	-	-
50733	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.120"	-	-
50734	-	.3750	3/8"	9.525	3/8"	2"	1/2"	.125"	-	-
50562	-	.3750	3/8"	9.525	3/8"	2"	1/2"	BALL	-	-
50241	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	-	-	-
50216	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.010"	-	-
50735	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.015"	-	-
50217	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.020"	-	-
50218	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.030"	-	-
50736	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.040"	-	-
50219	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.060"	-	-
50636	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.090"	-	-
50737	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.120"	-	-
50738	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.125"	-	-
50257	-	.3750	3/8"	9.525	3/8"	2-1/2"	1"	BALL	-	-
50661	-	.3750	3/8"	9.525	3/8"	3"	1-1/4"	-	-	-
50739	-	.3750	3/8"	9.525	3/8"	3"	1-1/4"	.015"	-	-
50637	-	.3750	3/8"	9.525	3/8"	3"	1-1/4"	.030"	-	-
50740	-	.3750	3/8"	9.525	3/8"	3"	1-1/4"	.060"	-	-
50689	-	.3750	3/8"	9.525	3/8"	3"	1-1/4"	BALL	-	-
50662	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"	-	-	-
50741	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"	.015"	-	-
50742	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"	.030"	-	-
50743	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"	.060"	-	-
50744	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"	.120"	-	-
50690	-	.3750	3/8"	9.525	3/8"	4"	1-1/2"	BALL	-	-
50745	-	.3750	3/8"	9.525	3/8"	6"	2-1/2"	.060	-	-
50604	-	.3750	3/8"	9.525	3/8"	4"	1/2"	-	1-1/8"	.355"
50220	-	.3750	3/8"	9.525	3/8"	4"	1/2"	.020"	1-7/8"	.350"
50476	-	.3750	3/8"	9.525	3/8"	4"	1/2"	BALL	1-1/8"	.355"
50606	-	.3937		10.000	10.0	50	14	-	-	-
50638	-	.3937		10.000	10.0	50	14	0.50	-	-
50242	-	.3937		10.000	10.0	70	22	-	-	-
50746	-	.3937		10.000	10.0	70	22	0.25	-	-
50221	-	.3937		10.000	10.0	70	22	0.50	-	-
50359	-	.3937		10.000	10.0	70	22	0.75	-	-
50360	-	.3937		10.000	10.0	70	22	1.00	-	-
50361	-	.3937		10.000	10.0	70	22	1.50	-	-
50362	-	.3937		10.000	10.0	70	22	2.00	-	-
50747	-	.3937		10.000	10.0	70	22	3.00	-	-
50258	-	.3937		10.000	10.0	70	22	BALL	-	-
50608	-	.3937		10.000	10.0	70	26	-	-	-
50748	-	.3937		10.000	10.0	70	26	1.50	-	-
50663	-	.3937		10.000	10.0	70	30	-	-	-
50691	-	.3937		10.000	10.0	70	30	BALL	-	-

MATERIAL HARDNESS (Rc)
70
35
0

† *Metric equivalents are for reference only*

EDP# (plain)	EDP# (weldon)	d_1 † Diameter Decimal	d_1 † Diameter	d_1 † Diameter Metric	d_2 Shank Diameter	l_1 Overall Length	l_2 Flute Length	r Corner Radius	l_3 Reach Length	d_3 Neck Diameter
50749	-	.3937		10.000	10.0	70	22	0.50	30	9.40
50750	-	.3937		10.000	10.0	100	12	0.30	50	9.40
50692	-	.3937		10.000	10.0	100	14	BALL	50	9.40
50450	50449	.4724		12.000	12.0	75	26	-	-	-
50363	50369	.4724		12.000	12.0	75	26	0.30	-	-
50364	50370	.4724		12.000	12.0	75	26	0.50	-	-
50365	50366	.4724		12.000	12.0	75	26	0.75	-	-
50367	50371	.4724		12.000	12.0	75	26	1.00	-	-
50372	50373	.4724		12.000	12.0	75	26	1.50	-	-
50374	50375	.4724		12.000	12.0	75	26	2.00	-	-
50470	-	.4724		12.000	12.0	75	26	BALL	-	-
50243	50283	.4724		12.000	12.0	75	32	-	-	-
50222	50270	.4724		12.000	12.0	75	32	0.50	-	-
50223	50271	.4724		12.000	12.0	75	32	1.00	-	-
50259	50291	.4724		12.000	12.0	75	32	BALL	-	-
50664	-	.4724		12.000	12.0	88	36	-	-	-
50751	-	.4724		12.000	12.0	88	36	0.30	-	-
50752	-	.4724		12.000	12.0	88	36	0.50	-	-
50753	-	.4724		12.000	12.0	88	36	1.00	-	-
50754	-	.4724		12.000	12.0	88	36	1.50	-	-
50755	-	.4724		12.000	12.0	88	36	3.00	-	-
50693	-	.4724		12.000	12.0	88	36	BALL	-	-
50564	-	.4724		12.000	12.0	100	42	-	-	-
50566	-	.4724		12.000	12.0	100	42	0.30	-	-
50568	-	.4724		12.000	12.0	100	42	0.50	-	-
50570	-	.4724		12.000	12.0	100	42	1.00	-	-
50572	-	.4724		12.000	12.0	100	42	2.00	-	-
50574	-	.4724		12.000	12.0	100	42	3.00	-	-
50576	-	.4724		12.000	12.0	100	42	BALL	-	-
50665	-	.4724		12.000	12.0	100	48	-	-	-
50756	-	.4724		12.000	12.0	100	48	0.30	-	-
50757	-	.4724		12.000	12.0	100	48	0.50	-	-
50758	-	.4724		12.000	12.0	100	48	1.00	-	-
50759	-	.4724		12.000	12.0	100	48	1.50	-	-
50760	-	.4724		12.000	12.0	100	48	3.00	-	-
50761	-	.4724		12.000	12.0	100	48	4.00	-	-
50694	-	.4724		12.000	12.0	100	48	BALL	-	-
50695	-	.4724		12.000	12.0	100	14	BALL	50	11.40
50543	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	-	-	-
50640	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.010"	-	-
50762	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.015"	-	-
50496	50497	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.020"	-	-
50642	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.030"	-	-
50763	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.060"	-	-
50764	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.090"	-	-
50765	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.120"	-	-
50644	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.125"	-	-
50766	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.156"	-	-
50767	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.190"	-	-
50563	-	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	BALL	-	-

continued →

Series V4S, V4R, V4B *(continued)*

.5000"
(12.700mm)

EDP# (plain)	EDP# (weldon)	d_1 † Diameter Decimal	Diameter	Metric	d_2 Shank Diameter	l_1 Overall Length	l_2 Flute Length	r Corner Radius	l_3 Reach Length	d_3 Neck Diameter
50452	50453	.5000	1/2"	12.700	1/2"	3"	1"	-	-	-
50379	50380	.5000	1/2"	12.700	1/2"	3"	1"	.010"	-	-
50768	-	.5000	1/2"	12.700	1/2"	3"	1"	.015"	-	-
50381	50382	.5000	1/2"	12.700	1/2"	3"	1"	.020"	-	-
50383	50384	.5000	1/2"	12.700	1/2"	3"	1"	.030"	-	-
50385	50386	.5000	1/2"	12.700	1/2"	3"	1"	.060"	-	-
50769	-	.5000	1/2"	12.700	1/2"	3"	1"	.090"	-	-
50770	-	.5000	1/2"	12.700	1/2"	3"	1"	.120"	-	-
50771	-	.5000	1/2"	12.700	1/2"	3"	1"	.125"	-	-
50772	-	.5000	1/2"	12.700	1/2"	3"	1"	.190"	-	-
50472	50473	.5000	1/2"	12.700	1/2"	3"	1"	BALL	-	-
50244	50284	.5000	1/2"	12.700	1/2"	3"	1-1/4"	-	-	-
50224	50272	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.010"	-	-
50773	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.015"	-	-
50225	50273	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.020"	-	-
50226	50274	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.030"	-	-
50227	50275	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.060"	-	-
50774	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.090"	-	-
50775	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.120"	-	-
50776	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.125"	-	-
50777	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.156"	-	-
50778	-	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.190"	-	-
50260	50292	.5000	1/2"	12.700	1/2"	3"	1-1/4"	BALL	-	-
50666	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	-	-	-
50779	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	.010"	-	-
50780	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	.015"	-	-
50781	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	.020"	-	-
50782	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	.030"	-	-
50783	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	.060"	-	-
50784	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	.090"	-	-
50785	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	.120"	-	-
50696	-	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	BALL	-	-
50578	50579	.5000	1/2"	12.700	1/2"	4"	1-5/8"	-	-	-
50580	50581	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.010"	-	-
50582	50583	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.020"	-	-
50584	50585	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.030"	-	-
50586	50587	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.040"	-	-
50588	50589	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.060"	-	-
50590	50591	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.120"	-	-
50592	50593	.5000	1/2"	12.700	1/2"	4"	1-5/8"	BALL	-	-
50646	-	.5000	1/2"	12.700	1/2"	4"	1-3/4"	-	-	-
50647	-	.5000	1/2"	12.700	1/2"	4"	2"	-	-	-
50245	50285	.5000	1/2"	12.700	1/2"	4"	2-1/8"	-	-	-
50786	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.010"	-	-
50787	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.015"	-	-
50788	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.020"	-	-
50789	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.030"	-	-
50790	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.060"	-	-
50791	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.090"	-	-
50792	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.120"	-	-
50793	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.125"	-	-
50794	-	.5000	1/2"	12.700	1/2"	4"	2-1/8"	.190"	-	-
50261	50293	.5000	1/2"	12.700	1/2"	4"	2-1/8"	BALL	-	-

MATERIAL HARDNESS (Rc)
70
35
0

† *Metric equivalents are for reference only*

EDP# (plain)	EDP# (weldon)	d_1 † Diameter Decimal	d_1 † Diameter	d_1 † Diameter Metric	d_2 Shank Diameter	l_1 Overall Length	l_2 Flute Length	r Corner Radius	l_3 Reach Length	d_3 Neck Diameter
50668	-	.5000	1/2"	12.700	1/2"	6"	3"	-	-	-
50795	-	.5000	1/2"	12.700	1/2"	6"	3"	.020"	-	-
50796	-	.5000	1/2"	12.700	1/2"	6"	3"	.030"	-	-
50797	-	.5000	1/2"	12.700	1/2"	6"	3"	.060"	-	-
50798	-	.5000	1/2"	12.700	1/2"	6"	3"	.120"	-	-
50799	-	.5000	1/2"	12.700	1/2"	6"	3"	.190"	-	-
50699	-	.5000	1/2"	12.700	1/2"	6"	3"	BALL		
50610	-	.5000	1/2"	12.700	1/2"	4"	5/8"	-	2-1/4"	.475"
50228	50276	.5000	1/2"	12.700	1/2"	4"	5/8"	.020"	2-1/4"	.470"
50900	-	.5000	1/2"	12.700	1/2"	4"	5/8"	.030"	2-1/4"	.470"
50901	-	.5000	1/2"	12.700	1/2"	4"	5/8"	.060"	2-1/4"	.470"
50902	-	.5000	1/2"	12.700	1/2"	4"	5/8"	.120"	2-1/4"	.470"
50478	-	.5000	1/2"	12.700	1/2"	4"	5/8"	BALL	2-1/4"	.475"
50667	-	.5000	1/2"	12.700	1/2"	6"	5/8"	-	3-1/8"	.475"
50235	-	.5000	1/2"	12.700	1/2"	6"	5/8"	-	4-1/8"	.475"
50594	-	.5000	1/2"	12.700	1/2"	6"	5/8"	.020"	4-1/8"	.470"
50596	-	.5000	1/2"	12.700	1/2"	6"	5/8"	.030"	4-1/8"	.470"
50697	-	.5000	1/2"	12.700	1/2"	6"	5/8"	BALL	3-1/8"	.475"
50598	-	.5000	1/2"	12.700	1/2"	6"	5/8"	BALL	4-1/8"	.475"
50698	-	.5000	1/2"	12.700	1/2"	6"	1"	BALL	4-1/2"	.475"
50545	50546	.6250	5/8"	15.875	5/8"	3"	3/4"	-	-	-
50903	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.010"	-	-
50904	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.015"	-	-
50498	50499	.6250	5/8"	15.875	5/8"	3"	3/4"	.020"	-	-
50500	50501	.6250	5/8"	15.875	5/8"	3"	3/4"	.030"	-	-
50502	50503	.6250	5/8"	15.875	5/8"	3"	3/4"	.060"	-	-
50905	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.090"	-	-
50906	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.120"	-	-
50907	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.125"	-	-
50908	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.156"	-	-
50909	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.190"	-	-
50910	-	.6250	5/8"	15.875	5/8"	3"	3/4"	.250"	-	-
50246	50286	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	-	-	-
50911	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.010"	-	-
50912	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.015"	-	-
50229	50277	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.020"	-	-
50534	50535	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.030"	-	-
50536		.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.040"	-	-
50538	50539	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.060"	-	-
50913	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.090"	-	-
50230	50278	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.120"	-	-
50914	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.125"	-	-
50915	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.156"	-	-
50916	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.190"	-	-
50917	-	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.250"	-	-
50262	50294	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	BALL	-	-

continued →

Series V4S, V4R, V4B *(continued)*

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

EDP# (plain)	EDP# (weldon)	d_1 † Diameter Decimal	d_1 † Diameter	d_1 † Diameter Metric	d_2 Shank Diameter	l_1 Overall Length	l_2 Flute Length	r Corner Radius	l_3 Reach Length	d_3 Neck Diameter
50669	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	-	-	-
50918	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.010"	-	-
50919	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.015"	-	-
50920	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.020"	-	-
50921	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.030"	-	-
50922	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.060"	-	-
50923	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.090"	-	-
50924	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.120"	-	-
50925	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.125"	-	-
50926	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.156"	-	-
50927	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.190"	-	-
50928	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	.250"	-	-
50700	-	.6250	5/8"	15.875	5/8"	4"	1-1/2"	BALL	-	-
50612	-	.6250	5/8"	15.875	5/8"	4"	1-5/8"	-	-	-
50670	-	.6250	5/8"	15.875	5/8"	4"	1-3/4"	-	-	-
50701	-	.6250	5/8"	15.875	5/8"	4"	1-3/4"	BALL	-	-
50547	-	.6299		16.000	16.0	75	19	-	-	-
50504	-	.6299		16.000	16.0	75	19	0.50	-	-
50506	-	.6299		16.000	16.0	75	19	1.00	-	-
50508	-	.6299		16.000	16.0	75	19	3.00	-	-
50929	-	.6299		16.000	16.0	75	19	4.00	-	-
50930	-	.6299		16.000	16.0	75	19	5.00	-	-
50931	-	.6299		16.000	16.0	75	19	6.00	-	-
50247	50287	.6299		16.000	16.0	88	32	-	-	-
50231	50279	.6299		16.000	16.0	88	32	0.50	-	-
50409	50410	.6299		16.000	16.0	88	32	0.75	-	-
50411	50412	.6299		16.000	16.0	88	32	1.00	-	-
50413	50414	.6299		16.000	16.0	88	32	1.50	-	-
50415	50416	.6299		16.000	16.0	88	32	2.00	-	-
50932	-	.6299		16.000	16.0	88	32	2.50	-	-
50417	50418	.6299		16.000	16.0	88	32	3.00	-	-
50933	-	.6299		16.000	16.0	88	32	4.00	-	-
50934	-	.6299		16.000	16.0	88	32	5.00	-	-
50935	-	.6299		16.000	16.0	88	32	6.00	-	-
50263	50295	.6299		16.000	16.0	88	32	BALL	-	-
50671	-	.6299		16.000	16.0	100	48	-	-	-
50936	-	.6299		16.000	16.0	100	48	0.50	-	-
50937	-	.6299		16.000	16.0	100	48	1.00	-	-
50938	-	.6299		16.000	16.0	100	48	1.50	-	-
50939	-	.6299		16.000	16.0	100	48	2.00	-	-
50940	-	.6299		16.000	16.0	100	48	3.00	-	-
50941	-	.6299		16.000	16.0	100	48	4.00	-	-
50942	-	.6299		16.000	16.0	100	48	5.00	-	-
50943	-	.6299		16.000	16.0	100	48	6.00	-	-
50702	-	.6299		16.000	16.0	100	48	BALL	-	-

MATERIAL HARDNESS (Rc)
70
35
0

† *Metric equivalents are for reference only*

EDP# (plain)	EDP# (weldon)	d_1 † Diameter Decimal	d_1 † Diameter	d_1 † Diameter Metric	d_2 Shank Diameter	l_1 Overall Length	l_2 Flute Length	r Corner Radius	l_3 Reach Length	d_3 Neck Diameter
50548	-	.7500	3/4"	19.050	3/4"	3"	7/8"	-	-	-
50944	-	.7500	3/4"	19.050	3/4"	3"	7/8"	.010"	-	-
50945	-	.7500	3/4"	19.050	3/4"	3"	7/8"	.015"	-	-
50946	-	.7500	3/4"	19.050	3/4"	3"	7/8"	.020"	-	-
50556	-	.7500	3/4"	19.050	3/4"	3"	7/8"	.030"	-	-
50947	-	.7500	3/4"	19.050	3/4"	3"	7/8"	.060"	-	-
50948	-	.7500	3/4"	19.050	3/4"	3"	7/8"	.120"	-	-
50549	50550	.7500	3/4"	19.050	3/4"	4"	1"	-	-	-
50949	-	.7500	3/4"	19.050	3/4"	4"	1"	.010"	-	-
50950	-	.7500	3/4"	19.050	3/4"	4"	1"	.015"	-	-
50510	50511	.7500	3/4"	19.050	3/4"	4"	1"	.020"	-	-
50512	50513	.7500	3/4"	19.050	3/4"	4"	1"	.030"	-	-
50514	50515	.7500	3/4"	19.050	3/4"	4"	1"	.060"	-	-
50951	-	.7500	3/4"	19.050	3/4"	4"	1"	.090"	-	-
50952	-	.7500	3/4"	19.050	3/4"	4"	1"	.120"	-	-
50954	-	.7500	3/4"	19.050	3/4"	4"	1"	.250"	-	-
50955	-	.7500	3/4"	19.050	3/4"	4"	1"	.3125"	-	-
50248	50288	.7500	3/4"	19.050	3/4"	4"	1-1/2"	-	-	-
50956	-	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.010"	-	-
50957	-	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.015"	-	-
50516	50517	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.020"	-	-
50232	50280	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.030"	-	-
50518	50519	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.060"	-	-
50958	-	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.090"	-	-
50520	50521	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.120"	-	-
50959	-	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.125"	-	-
50960	-	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.156"	-	-
50961	-	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.190"	-	-
50962	-	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.250"	-	-
50963	-	.7500	3/4"	19.050	3/4"	4"	1-1/2"	.3125"	-	-
50264	50296	.7500	3/4"	19.050	3/4"	4"	1-1/2"	BALL	-	-
50551	50552	.7500	3/4"	19.050	3/4"	4"	1-3/4"	-	-	-
50964	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.010"	-	-
50965	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.015"	-	-
50522	50523	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.020"	-	-
50524	50525	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.030"	-	-
50526	50527	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.060"	-	-
50966	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.090"	-	-
50967	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.120"	-	-
50968	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.125"	-	-
50969	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.156"	-	-
50970	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.190"	-	-
50971	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.250"	-	-
50972	-	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.3125"	-	-

continued →

Series V4S, V4R, V4B *(continued)*

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

EDP# (plain)	EDP# (weldon)	d_1 † Diameter Decimal	Diameter	Metric	d_2 Shank Diameter	l_1 Overall Length	l_2 Flute Length	r Corner Radius	l_3 Reach Length	d_3 Neck Diameter
50553	50554	.7500	3/4"	19.050	3/4"	5"	2-1/8"	-	-	-
50973	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.010"	-	-
50974	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.015"	-	-
50975	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.020"	-	-
50976	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.030"	-	-
50977	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.060"	-	-
50979	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.120"	-	-
50980	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.125"	-	-
50981	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.156"	-	-
50982	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.190"	-	-
50983	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.250"	-	-
50984	-	.7500	3/4"	19.050	3/4"	5"	2-1/8"	.3125"	-	-
50672	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	-	-	-
50985	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.010"	-	-
50986	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.015"	-	-
50987	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.020"	-	-
50988	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.030"	-	-
50989	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.060"	-	-
50990	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.090"	-	-
50991	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.120"	-	-
50992	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.125"	-	-
50993	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.156"	-	-
50994	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.190"	-	-
50995	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.250"	-	-
50996	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	.3125"	-	-
50703	-	.7500	3/4"	19.050	3/4"	5"	2-1/2"	BALL	-	-
50555	-	.7874		20.000	20.0	100	25	-	-	-
50249	50289	.7874		20.000	20.0	100	38	-	-	-
50997	-	.7874		20.000	20.0	100	38	0.50	-	-
50528	-	.7874		20.000	20.0	100	38	1.00	-	-
50530	-	.7874		20.000	20.0	100	38	2.00	-	-
50998	-	.7874		20.000	20.0	100	38	2.50	-	-
50532	-	.7874		20.000	20.0	100	38	3.00	-	-
50999	-	.7874		20.000	20.0	100	38	4.00	-	-
50121	-	.7874		20.000	20.0	100	38	5.00	-	-
50122	-	.7874		20.000	20.0	100	38	6.00	-	-
50123	-	.7874		20.000	20.0	100	38	8.00	-	-
50265	50297	.7874		20.000	20.0	100	38	BALL	-	-
50673	-	.7874		20.000	20.0	100	48	-	-	-
50124	-	.7874		20.000	20.0	100	48	0.50	-	-
50125	-	.7874		20.000	20.0	100	48	1.00	-	-
50126	-	.7874		20.000	20.0	100	48	1.50	-	-
50127	-	.7874		20.000	20.0	100	48	2.00	-	-
50128	-	.7874		20.000	20.0	100	48	2.50	-	-
50129	-	.7874		20.000	20.0	100	48	3.00	-	-
50131	-	.7874		20.000	20.0	100	48	4.00	-	-
50132	-	.7874		20.000	20.0	100	48	5.00	-	-
50133	-	.7874		20.000	20.0	100	48	6.00	-	-
50134	-	.7874		20.000	20.0	100	48	8.00	-	-

MATERIAL HARDNESS (Rc)
70
35
0

† *Metric equivalents are for reference only*

EDP# (plain)	EDP# (weldon)	d_1 † Diameter Decimal	Diameter	Metric	d_2 Shank Diameter	l_1 Overall Length	l_2 Flute Length	r Corner Radius	l_3 Reach Length	d_3 Neck Diameter
50674	-	.7874		20.000	20.0	150	60	-	-	-
50135	-	.7874		20.000	20.0	150	60	0.50	-	-
50136	-	.7874		20.000	20.0	150	60	1.00	-	-
50137	-	.7874		20.000	20.0	150	60	3.00	-	-
50138	-	.7874		20.000	20.0	150	60	6.00	-	-
50705	-	.7874		20.000	20.0	150	60	BALL	-	-
50250	50290	1.000	1"	25.400	1"	4"	1-1/2"	-	-	-
50139	-	1.000	1"	25.400	1"	4"	1-1/2"	.020"	-	-
50233	50281	1.000	1"	25.400	1"	4"	1-1/2"	.030"	-	-
50141	-	1.000	1"	25.400	1"	4"	1-1/2"	.060"	-	-
50142	-	1.000	1"	25.400	1"	4"	1-1/2"	.090"	-	-
50143	-	1.000	1"	25.400	1"	4"	1-1/2"	.120"	-	-
50557	-	1.000	1"	25.400	1"	4"	1-1/2"	.125"	-	-
50144	-	1.000	1"	25.400	1"	4"	1-1/2"	.156"	-	-
50145	-	1.000	1"	25.400	1"	4"	1-1/2"	.190"	-	-
50146	-	1.000	1"	25.400	1"	4"	1-1/2"	.250"	-	-
50147	-	1.000	1"	25.400	1"	4"	1-1/2"	.3125"	-	-
50148	-	1.000	1"	25.400	1"	4"	1-1/2"	.375"	-	-
50266	50298	1.000	1"	25.400	1"	4"	1-1/2"	BALL	-	-
50675	-	1.000	1"	25.400	1"	4-1/2"	2"	-	-	-
50149	-	1.000	1"	25.400	1"	4-1/2"	2"	.020"	-	-
50151	-	1.000	1"	25.400	1"	4-1/2"	2"	.030"	-	-
50152	-	1.000	1"	25.400	1"	4-1/2"	2"	.060"	-	-
50153	-	1.000	1"	25.400	1"	4-1/2"	2"	.090"	-	-
50154	-	1.000	1"	25.400	1"	4-1/2"	2"	.120"	-	-
50155	-	1.000	1"	25.400	1"	4-1/2"	2"	.156"	-	-
50156	-	1.000	1"	25.400	1"	4-1/2"	2"	.190"	-	-
50157	-	1.000	1"	25.400	1"	4-1/2"	2"	.250"	-	-
50158	-	1.000	1"	25.400	1"	4-1/2"	2"	.3125"	-	-
50706	-	1.000	1"	25.400	1"	4-1/2"	2"	BALL	-	-
50234	50282	1.000	1"	25.400	1"	5"	2-1/8"	.030"	-	-
50676	-	1.000	1"	25.400	1"	5"	2-1/2"	-	-	-
50159	-	1.000	1"	25.400	1"	5"	2-1/2"	.020"	-	-
50161	-	1.000	1"	25.400	1"	5"	2-1/2"	.030"	-	-
50162	-	1.000	1"	25.400	1"	5"	2-1/2"	.060"	-	-
50163	-	1.000	1"	25.400	1"	5"	2-1/2"	.090"	-	-
50164	-	1.000	1"	25.400	1"	5"	2-1/2"	.120"	-	-
50165	-	1.000	1"	25.400	1"	5"	2-1/2"	.156"	-	-
50166	-	1.000	1"	25.400	1"	5"	2-1/2"	.190"	-	-
50167	-	1.000	1"	25.400	1"	5"	2-1/2"	.250"	-	-
50168	-	1.000	1"	25.400	1"	5"	2-1/2"	.3125"	-	-
50707	-	1.000	1"	25.400	1"	5"	2-1/2"	BALL	-	-