



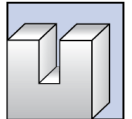
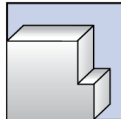
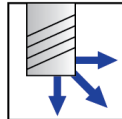
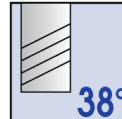
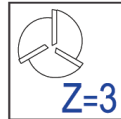
143M

143R

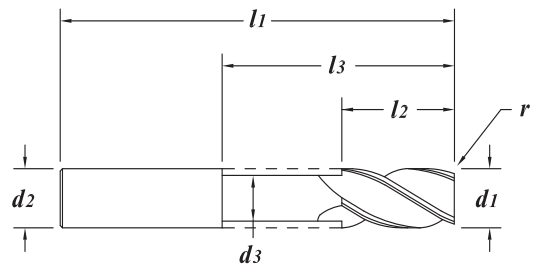
N

HSAL End Mills
BALINIT® MAYURA Coating

Target Materials:
Aluminum



**CALCULATE IDEAL PARAMETERS
FOR THE 143M AND 143R IN YOUR
APPLICATION WITH THE GARR
TECHNICAL ADVISOR**



← View the 143M

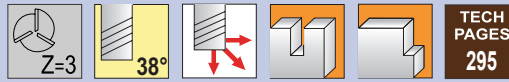
View the 143R →



TOLERANCES	
d_1	+0.000" -0.001" (+0.000 -0.025mm)
d_2	h6
r	+0.001" -0.001" (+0.025 -0.025mm)

HIGH EFFICIENCY MILLING

Series 143M, 143R



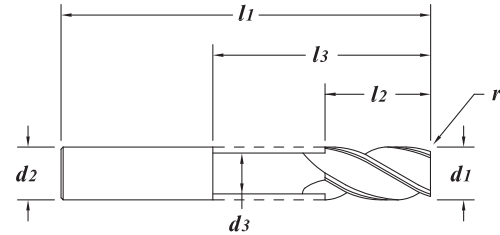
.1181" - .1875"
(3.000mm - 4.763mm)

Recommended for aluminum

HSAL End Mill - Square End and Corner Radius

BALINIT® MAYURA Coating

- Solid submicron grain carbide end mill - center cutting
- Engineered for High Efficiency Milling
- Specific coating engineered to repel aluminum
- Engineered to run at 750-2500 SFM (225-750 M/Min.)
- For high speed machining of aluminum
- High velocity - high metal removal rate (for 5,000-20,000 RPM spindles)
- Need to use properly balanced holders
- Holds perpendicularity
- Flats can be added within 48 hours



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	LIST PRICE	
	Decimal	Metric								
41173	.1181	3.000	3	38	6	-	-	-	19.23	
39113	.1181	3.000	3	38	6	0.20	-	-	22.16	
39123	.1181	3.000	3	38	6	0.50	-	-	22.16	
41183	.1181	3.000	3	38	12	-	-	-	19.23	
39133	.1181	3.000	3	38	12	0.20	-	-	22.16	
39143	.1181	3.000	3	38	12	0.50	-	-	22.16	
41193	.1250	1/8"	3.175	1/8"	1-1/2"	1/4"	-	-	18.73	
39153	.1250	1/8"	3.175	1/8"	1-1/2"	1/4"	.010"	-	21.51	
39163	.1250	1/8"	3.175	1/8"	1-1/2"	1/4"	.020"	-	21.51	
41203	.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	-	-	18.73	
39173	.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	.010"	-	21.51	
39183	.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	.020"	-	21.51	
41213	.1575	4.000	6	50	8	-	-	-	25.56	
39193	.1575	4.000	6	50	8	0.20	-	-	29.92	
39203	.1575	4.000	6	50	8	0.50	-	-	29.92	
41223	.1575	4.000	6	50	12	-	-	-	25.56	
39213	.1575	4.000	6	50	12	0.20	-	-	29.92	
39223	.1575	4.000	6	50	12	0.30	-	-	29.92	
39225	.1575	4.000	6	50	12	0.50	-	-	29.92	
41243	.1575	4.000	6	65	6	-	20	3.7	32.00	
39243	.1575	4.000	6	65	6	0.30	20	3.7	36.58	
39253	.1575	4.000	6	65	6	0.50	20	3.7	36.58	
39263	.1575	4.000	6	65	6	1.00	20	3.7	36.58	
41273	.1875	3/16"	4.763	3/16"	2"	5/16"	-	-	19.27	
39265	.1875	3/16"	4.763	3/16"	2"	5/16"	.010"	-	22.18	
39275	.1875	3/16"	4.763	3/16"	2"	5/16"	.020"	-	22.18	
39280	.1875	3/16"	4.763	3/16"	2"	5/16"	.030"	-	22.18	
41283	.1875	3/16"	4.763	3/16"	2"	9/16"	-	-	19.27	
39283	.1875	3/16"	4.763	3/16"	2"	9/16"	.010"	-	22.18	
39285	.1875	3/16"	4.763	3/16"	2"	9/16"	.020"	-	22.18	
39293	.1875	3/16"	4.763	3/16"	2"	9/16"	.030"	-	22.18	
41303	.1875	3/16"	4.763	3/16"	3"	7/32"	-	3/4"	.170"	36.18
39303	.1875	3/16"	4.763	3/16"	3"	7/32"	.010"	3/4"	.170"	40.61
39313	.1875	3/16"	4.763	3/16"	3"	7/32"	.030"	3/4"	.170"	40.61
41313	.1875	3/16"	4.763	3/16"	3"	1"	-	-	-	31.10

HIGH PERFORMANCE
END MILLS

MATERIAL HARDNESS (Rc)
70
35
0

continued →

Series 143M, 143R (continued)

.1969" - .3125"
(5.000mm - 7.938mm)

MATERIAL HARDNESS (Rc) 70 35 0

EDP#	$d1$ † Diameter		$d2$ Shank Diameter	$l1$ Overall Length	$l2$ Flute Length	r Corner Radius	$l3$ Reach Length	$d3$ Neck Diameter	LIST PRICE	
	Decimal	Metric								
41343	.1969	5.000	6	65	16	-	-	-	26.38	
39343	.1969	5.000	6	65	16	0.30	-	-	30.87	
41363	.1969	5.000	6	75	8	-	20	4.7	44.85	
39363	.1969	5.000	6	75	8	0.30	20	4.7	50.43	
39373	.1969	5.000	6	75	8	0.50	20	4.7	50.43	
39383	.1969	5.000	6	75	8	1.00	20	4.7	50.43	
41403	.2362	6.000	6	65	19	-	-	-	25.54	
39403	.2362	6.000	6	65	19	0.30	-	-	29.88	
41423	.2362	6.000	6	75	10	-	25	5.7	43.41	
39423	.2362	6.000	6	75	10	0.30	25	5.7	48.81	
39433	.2362	6.000	6	75	10	0.50	25	5.7	48.81	
39436	.2362	6.000	6	75	10	1.00	25	5.7	48.81	
39439	.2362	6.000	6	75	10	1.50	25	5.7	48.81	
39443	.2362	6.000	6	75	10	2.00	25	5.7	48.81	
39735	.2500	1/4"	6.350	1/4"	2"	3/8"	-	-	23.02	
39737	.2500	1/4"	6.350	1/4"	2"	1/2"	-	-	23.02	
39314	.2500	1/4"	6.350	1/4"	2"	1/2"	.010"	-	26.93	
39316	.2500	1/4"	6.350	1/4"	2"	1/2"	.015"	-	26.93	
39318	.2500	1/4"	6.350	1/4"	2"	1/2"	.020"	-	26.93	
41453	.2500	1/4"	6.350	1/4"	2-1/2"	3/8"	-	-	24.26	
41463	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	-	-	24.26	
39453	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.010"	-	28.38	
39463	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.015"	-	28.38	
39320	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.020"	-	28.38	
39473	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.030"	-	28.38	
41473	.2500	1/4"	6.350	1/4"	3"	1"	-	-	36.79	
39483	.2500	1/4"	6.350	1/4"	3"	1-1/8"	.030"	-	43.04	
41475	.2500	1/4"	6.350	1/4"	3"	1-1/4"	-	-	36.79	
41493	.2500	1/4"	6.350	1/4"	4"	3/8"	-	1-1/8"	.235"	43.86
39493	.2500	1/4"	6.350	1/4"	4"	3/8"	.015"	1-1/8"	.235"	49.18
40403	.2500	1/4"	6.350	1/4"	4"	3/8"	.030"	1-1/8"	.235"	49.18
41503	.2500	1/4"	6.350	1/4"	4"	3/8"	-	2-1/8"	.235"	48.95
39503	.2500	1/4"	6.350	1/4"	4"	3/8"	.015"	2-1/8"	.235"	54.24
41511	.2500	1/4"	6.350	1/4"	4"	1-1/2"	-	-	-	38.78
41513	.2500	1/4"	6.350	1/4"	4"	1-5/8"	-	-	-	38.78
41543	.2756	7.000	8	65	19	-	-	-	39.16	
39543	.2756	7.000	8	65	19	0.30	-	-	43.45	
41563	.2756	7.000	8	75	12	-	25	6.4	58.84	
39563	.2756	7.000	8	75	12	0.30	25	6.4	66.20	
39322	.3125	5/16"	7.938	5/16"	2"	1/2"	.010"	-	34.37	
39324	.3125	5/16"	7.938	5/16"	2"	1/2"	.020"	-	34.37	
41593	.3125	5/16"	7.938	5/16"	2-1/2"	7/16"	-	-	33.70	
41603	.3125	5/16"	7.938	5/16"	2-1/2"	3/4"	-	-	33.70	
39593	.3125	5/16"	7.938	5/16"	2-1/2"	3/4"	.010"	-	37.57	
39603	.3125	5/16"	7.938	5/16"	2-1/2"	3/4"	.015"	-	37.57	
39326	.3125	5/16"	7.938	5/16"	2-1/2"	3/4"	.020"	-	37.57	
39613	.3125	5/16"	7.938	5/16"	2-1/2"	3/4"	.030"	-	37.57	
41605	.3125	5/16"	7.938	5/16"	3"	1"	-	-	45.88	
41623	.3125	5/16"	7.938	5/16"	4"	7/16"	-	1-1/8"	.297"	57.55
39623	.3125	5/16"	7.938	5/16"	4"	7/16"	.015"	1-1/8"	.297"	64.65
39633	.3125	5/16"	7.938	5/16"	4"	7/16"	.030"	1-1/8"	.297"	64.65

Series 143M, 143R (continued)

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

HIGH PERFORMANCE
END MILLS

EDP#	$d1$ † Diameter		$d2$ Shank Diameter	$l1$ Overall Length	$l2$ Flute Length	r Corner Radius	$l3$ Reach Length	$d3$ Neck Diameter	LIST PRICE	
	Decimal	Metric								
39739	.3150	8.000	8	50	12	-	-	-	31.85	
39328	.3150	8.000	8	50	12	0.50	-	-	35.97	
41663	.3150	8.000	8	65	19	-	-	-	35.48	
39663	.3150	8.000	8	65	19	0.50	-	-	39.52	
41683	.3150	8.000	8	75	12	-	25	7.4	53.54	
39683	.3150	8.000	8	75	12	0.50	25	7.4	60.23	
39688	.3150	8.000	8	75	12	1.00	25	7.4	60.23	
39693	.3150	8.000	8	75	12	2.00	25	7.4	60.23	
39698	.3150	8.000	8	75	12	3.00	25	7.4	60.23	
41685	.3150	8.000	8	75	26	-	-	-	48.29	
41687	.3150	8.000	8	75	30	-	-	-	48.29	
41693	.3150	8.000	8	100	12	-	55	7.4	65.65	
39741	.3750	3/8"	9.525	3/8"	2"	1/2"	-	-	35.46	
39330	.3750	3/8"	9.525	3/8"	2"	1/2"	.010"	-	40.45	
39332	.3750	3/8"	9.525	3/8"	2"	1/2"	.020"	-	40.45	
41713	.3750	3/8"	9.525	3/8"	2-1/2"	1/2"	-	-	39.59	
39743	.3750	3/8"	9.525	3/8"	2-1/2"	3/4"	-	-	39.59	
41723	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	-	-	39.59	
39703	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.010"	-	43.77	
39713	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.015"	-	43.77	
39334	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.020"	-	43.77	
39723	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.030"	-	43.77	
39733	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.060"	-	43.77	
39734	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	.120"	-	43.77	
41733	.3750	3/8"	9.525	3/8"	3"	1"	-	-	51.03	
41735	.3750	3/8"	9.525	3/8"	3"	1-1/4"	-	-	51.03	
39738	.3750	3/8"	9.525	3/8"	3"	1-1/4"	.030"	-	56.44	
41737	.3750	3/8"	9.525	3/8"	3-1/2"	1-1/2"	-	-	54.76	
39761	.3750	3/8"	9.525	3/8"	4"	1/2"	.030"	1-5/8"	.355"	74.76
41763	.3750	3/8"	9.525	3/8"	4"	1/2"	-	2-1/8"	.355"	66.90
39763	.3750	3/8"	9.525	3/8"	4"	1/2"	.030"	2-1/8"	.355"	74.76
39773	.3750	3/8"	9.525	3/8"	4"	1/2"	.060"	2-1/8"	.355"	74.76
41773	.3750	3/8"	9.525	3/8"	4"	1-5/8"	-	-	-	56.73
42363	.3750	3/8"	9.525	3/8"	4"	2"	-	-	-	56.73
41783	.3750	3/8"	9.525	3/8"	6"	1/2"	-	4"	.355"	101.37
39783	.3750	3/8"	9.525	3/8"	6"	1/2"	.030"	4"	.355"	109.16
39745	.3937	10.000	10	50	14	-	-	-	54.74	
39336	.3937	10.000	10	50	14	0.50	-	-	60.82	
41803	.3937	10.000	10	70	24	-	-	-	59.57	
39803	.3937	10.000	10	70	24	0.50	-	-	67.14	
41805	.3937	10.000	10	75	30	-	-	-	62.73	
41843	.3937	10.000	10	100	12	-	35	9.4	79.42	
39843	.3937	10.000	10	100	12	0.50	35	9.4	90.25	
39848	.3937	10.000	10	100	12	1.00	35	9.4	90.25	
39853	.3937	10.000	10	100	12	1.50	35	9.4	90.25	
39863	.3937	10.000	10	100	12	2.00	35	9.4	90.25	
39873	.3937	10.000	10	100	12	3.00	35	9.4	90.25	
41853	.3937	10.000	10	100	12	-	55	9.4	84.50	
41863	.3937	10.000	10	150	12	-	110	9.4	118.41	

70

MATERIAL HARDNESS (Rc)

35

0

continued →

Series 143M, 143R (continued)

.4724" - .5000"
(12.000mm - 12.700mm)

MATERIAL HARDNESS (Rc) 70 35 0

EDP#	$d1$ † Diameter		$d2$ Shank Diameter	$l1$ Overall Length	$l2$ Flute Length	r Corner Radius	$l3$ Reach Length	$d3$ Neck Diameter	LIST PRICE	
	Decimal	Metric								
39747	.4724	12.000	12	65	16	-	-	-	62.50	
39344	.4724	12.000	12	65	16	0.50	-	-	72.87	
39749	.4724	12.000	12	75	26	-	-	-	66.63	
41883	.4724	12.000	12	75	32	-	-	-	66.63	
39883	.4724	12.000	12	75	32	0.50	-	-	83.05	
39346	.4724	12.000	12	75	32	0.75	-	-	83.05	
39348	.4724	12.000	12	75	32	1.00	-	-	83.05	
41893	.4724	12.000	12	100	50	-	-	-	87.12	
41903	.4724	12.000	12	100	16	-	40	11.4	97.85	
39903	.4724	12.000	12	100	16	0.50	40	11.4	106.74	
39907	.4724	12.000	12	100	16	1.00	40	11.4	106.74	
39911	.4724	12.000	12	100	16	1.50	40	11.4	106.74	
39915	.4724	12.000	12	100	16	2.00	40	11.4	106.74	
39919	.4724	12.000	12	100	16	3.00	40	11.4	106.74	
41913	.4724	12.000	12	100	16	-	55	11.4	97.85	
41923	.4724	12.000	12	150	16	-	110	11.4	149.58	
39751	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	-	-	59.30	
39353	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.010"	-	69.23	
39355	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	.020"	-	69.23	
39753	.5000	1/2"	12.700	1/2"	2-1/2"	3/4"	-	-	59.30	
41933	.5000	1/2"	12.700	1/2"	3"	5/8"	-	-	63.31	
39755	.5000	1/2"	12.700	1/2"	3"	1"	-	-	63.31	
41943	.5000	1/2"	12.700	1/2"	3"	1-1/4"	-	-	63.31	
39923	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.010"	-	78.89	
39933	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.015"	-	78.89	
39356	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.020"	-	78.89	
39943	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.030"	-	78.89	
39953	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.060"	-	78.89	
39963	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.120"	-	78.89	
39965	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.125"	-	78.89	
39967	.5000	1/2"	12.700	1/2"	3"	1-1/4"	.190"	-	78.89	
41945	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	-	-	80.81	
41963	.5000	1/2"	12.700	1/2"	4"	1-5/8"	-	-	82.77	
39972	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.015"	-	91.23	
39975	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.030"	-	91.23	
39977	.5000	1/2"	12.700	1/2"	4"	1-5/8"	.090"	-	91.23	
41965	.5000	1/2"	12.700	1/2"	4"	1-3/4"	-	-	82.77	
41973	.5000	1/2"	12.700	1/2"	4"	2"	-	-	82.77	
39973	.5000	1/2"	12.700	1/2"	4"	2"	.010"	-	91.23	
40413	.5000	1/2"	12.700	1/2"	4"	2"	.030"	-	91.23	
40423	.5000	1/2"	12.700	1/2"	4"	2"	.060"	-	91.23	
41983	.5000	1/2"	12.700	1/2"	4"	5/8"	-	2-1/8"	.475"	92.94
40433	.5000	1/2"	12.700	1/2"	4"	5/8"	.010"	2-1/8"	.475"	101.4
39983	.5000	1/2"	12.700	1/2"	4"	5/8"	.030"	2-1/8"	.475"	101.4
40443	.5000	1/2"	12.700	1/2"	4"	5/8"	.060"	2-1/8"	.475"	101.4
40453	.5000	1/2"	12.700	1/2"	4"	5/8"	.120"	2-1/8"	.475"	101.4
41985	.5000	1/2"	12.700	1/2"	4"	5/8"	-	2-1/4"	.475"	92.94
41993	.5000	1/2"	12.700	1/2"	6"	5/8"	-	4-1/8"	.475"	142.10
39993	.5000	1/2"	12.700	1/2"	6"	5/8"	.030"	4-1/8"	.475"	152.17
42003	.5000	1/2"	12.700	1/2"	6"	3-1/8"	-	-	-	121.77

Series 143M, 143R (continued)

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

HIGH PERFORMANCE
END MILLS

EDP#	$d1$ † Diameter		$d2$ Shank Diameter	$l1$ Overall Length	$l2$ Flute Length	r Corner Radius	$l3$ Reach Length	$d3$ Neck Diameter	LIST PRICE	
	Decimal	Metric								
39757	.6250	5/8"	15.875	5/8"	3"	3/4"	-	-	117.31	
39366	.6250	5/8"	15.875	5/8"	3"	3/4"	.010"	-	127.30	
39368	.6250	5/8"	15.875	5/8"	3"	3/4"	.020"	-	127.30	
42013	.6250	5/8"	15.875	5/8"	3-1/2"	3/4"	-	-	120.68	
39759	.6250	5/8"	15.875	5/8"	3-1/2"	1"	-	-	120.68	
42016	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	-	-	120.68	
39369	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.015"	-	130.97	
39370	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	.020"	-	130.97	
42021	.6250	5/8"	15.875	5/8"	4"	1-1/2"	-	-	126.18	
42023	.6250	5/8"	15.875	5/8"	4"	1-5/8"	-	-	126.18	
40463	.6250	5/8"	15.875	5/8"	4"	1-5/8"	.015"	-	136.48	
39372	.6250	5/8"	15.875	5/8"	4"	1-5/8"	.020"	-	136.48	
40023	.6250	5/8"	15.875	5/8"	4"	1-5/8"	.030"	-	136.48	
40473	.6250	5/8"	15.875	5/8"	4"	1-5/8"	.060"	-	136.48	
40483	.6250	5/8"	15.875	5/8"	4"	1-5/8"	.120"	-	136.48	
40485	.6250	5/8"	15.875	5/8"	4"	1-5/8"	.190"	-	136.48	
42025	.6250	5/8"	15.875	5/8"	4"	1-3/4"	-	-	126.18	
42373	.6250	5/8"	15.875	5/8"	4"	2-1/8"	-	-	126.18	
42033	.6250	5/8"	15.875	5/8"	6"	3/4"	-	2-3/8"	.590"	176.11
40033	.6250	5/8"	15.875	5/8"	6"	3/4"	.030"	2-3/8"	.590"	195.14
42043	.6250	5/8"	15.875	5/8"	6"	3/4"	-	4-3/8"	.590"	186.28
40043	.6250	5/8"	15.875	5/8"	6"	3/4"	.030"	4-3/8"	.590"	205.33
42053	.6250	5/8"	15.875	5/8"	6"	3-1/4"	-	-	-	165.94
42083	.6299		16.000	16	100	40	-	-	-	132.81
40083	.6299		16.000	16	100	40	1.00	-	-	143.67
42103	.6299		16.000	16	100	20	-	40	15.4	137.89
40103	.6299		16.000	16	100	20	1.00	40	15.4	148.75
42113	.6299		16.000	16	125	20	-	60	15.4	176.20
40113	.6299		16.000	16	125	20	2.00	60	15.4	195.23
40118	.6299		16.000	16	125	20	3.00	60	15.4	195.23
40123	.6299		16.000	16	125	20	4.00	60	15.4	195.23
42123	.6299		16.000	16	150	20	-	110	15.4	196.10

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MATERIAL HARDNESS (RC)

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continued →

Series 143M, 143R (continued)

.7500" - 1.000"
(19.050mm - 25.400mm)

EDP#	$d1$ † Diameter		$d2$ Shank Diameter	$l1$ Overall Length	$l2$ Flute Length	r Corner Radius	$l3$ Reach Length	$d3$ Neck Diameter	LIST PRICE	
	Decimal	Metric								
42133	.7500	3/4"	19.050	3/4"	4"	1"	-	-	161.45	
42136	.7500	3/4"	19.050	3/4"	4"	1-1/4"	-	-	161.45	
39374	.7500	3/4"	19.050	3/4"	4"	1-1/4"	.020"	-	177.13	
42141	.7500	3/4"	19.050	3/4"	4"	1-1/2"	-	-	161.45	
42143	.7500	3/4"	19.050	3/4"	4"	1-5/8"	-	-	161.45	
40133	.7500	3/4"	19.050	3/4"	4"	1-5/8"	.015"	-	177.13	
39376	.7500	3/4"	19.050	3/4"	4"	1-5/8"	.020"	-	177.13	
40143	.7500	3/4"	19.050	3/4"	4"	1-5/8"	.030"	-	177.13	
40153	.7500	3/4"	19.050	3/4"	4"	1-5/8"	.060"	-	177.13	
40493	.7500	3/4"	19.050	3/4"	4"	1-5/8"	.120"	-	177.13	
40495	.7500	3/4"	19.050	3/4"	4"	1-5/8"	.190"	-	177.13	
40497	.7500	3/4"	19.050	3/4"	4"	1-5/8"	.250"	-	177.13	
42145	.7500	3/4"	19.050	3/4"	4"	1-3/4"	-	-	161.45	
42153	.7500	3/4"	19.050	3/4"	5"	2-1/4"	-	-	213.18	
42155	.7500	3/4"	19.050	3/4"	5"	2-1/2"	-	-	213.18	
42163	.7500	3/4"	19.050	3/4"	6"	1"	-	2-1/2"	.715"	231.91
40503	.7500	3/4"	19.050	3/4"	6"	1"	.015"	2-1/2"	.715"	263.97
40163	.7500	3/4"	19.050	3/4"	6"	1"	.030"	2-1/2"	.715"	263.97
40513	.7500	3/4"	19.050	3/4"	6"	1"	.060"	2-1/2"	.715"	263.97
40523	.7500	3/4"	19.050	3/4"	6"	1"	.120"	2-1/2"	.715"	263.97
40171	.7500	3/4"	19.050	3/4"	6"	1"	.015"	4"	.715"	271.14
42173	.7500	3/4"	19.050	3/4"	6"	1"	-	4-3/8"	.715"	239.09
40173	.7500	3/4"	19.050	3/4"	6"	1"	.030"	4-3/8"	.715"	271.14
42193	.7500	3/4"	19.050	3/4"	6"	3-1/4"	-	-	-	224.79
40175	.7500	3/4"	19.050	3/4"	6"	3-1/4"	.125"	-	-	253.75
42195	.7500	3/4"	19.050	3/4"	6-1/2"	4"	-	-	-	320.46
40177	.7500	3/4"	19.050	3/4"	6-1/2"	4"	.125"	-	-	351.76
42203	.7874		20.000	20	100	25	-	-	-	216.76
42213	.7874		20.000	20	100	32	-	-	-	216.76
40183	.7874		20.000	20	100	32	1.00	-	-	248.63
42223	.7874		20.000	20	100	20	-	40	19	221.84
40223	.7874		20.000	20	100	20	1.00	40	19	253.71
42226	.7874		20.000	20	125	20	-	60	19	256.88
40225	.7874		20.000	20	150	20	1.00	65	19	340.47
40226	.7874		20.000	20	150	20	2.00	65	19	340.47
40229	.7874		20.000	20	150	20	3.00	65	19	340.47
40231	.7874		20.000	20	150	20	4.00	65	19	340.47
42233	.7874		20.000	20	150	20	-	85	19	297.67
42236	.7874		20.000	20	150	20	-	110	19	302.77
42243	.9843		25.000	25	100	38	-	-	-	250.11
40243	.9843		25.000	25	100	38	1.00	-	-	287.69
42283	.9843		25.000	25	100	25	-	50	24	255.17
42286	.9843		25.000	25	125	25	-	65	24	318.94
42291	.9843		25.000	25	150	25	-	90	24	400.10
42293	1.000	1"	25.400	1"	4"	1"	-	-	-	242.64
42303	1.000	1"	25.400	1"	4"	1-5/8"	-	-	-	242.64
40293	1.000	1"	25.400	1"	4"	1-5/8"	.030"	-	-	302.07
40303	1.000	1"	25.400	1"	4"	1-5/8"	.060"	-	-	302.07
40313	1.000	1"	25.400	1"	4"	1-5/8"	.120"	-	-	302.07
42313	1.000	1"	25.400	1"	5"	2"	-	-	-	299.53
42343	1.000	1"	25.400	1"	6"	1-1/4"	-	3-3/8"	.960"	388.08
40343	1.000	1"	25.400	1"	6"	1-1/4"	.030"	3-3/8"	.960"	442.68
40353	1.000	1"	25.400	1"	6"	1-1/4"	.060"	3-3/8"	.960"	442.68
40363	1.000	1"	25.400	1"	6"	1-1/4"	.120"	3-3/8"	.960"	442.68
40366	1.000	1"	25.400	1"	6"	1-1/4"	.030"	4"	.960"	442.68
42353	1.000	1"	25.400	1"	6"	3-1/4"	-	-	-	372.86

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MATERIAL HARDNESS (Rc)

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