

TOLERANCES	
$d1$	$+0.000" - .001" (+.000 - .025\text{mm})$
$d2$	$h6$

HIGH EFFICIENCY MILLING

Series 143M



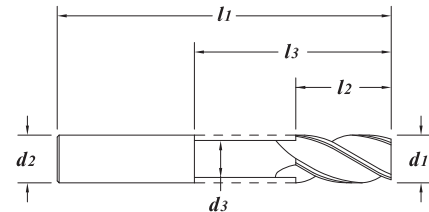
.1181" - .3150"
(3.000mm - 8.000mm)

Recommended for aluminum

HSAL End Mill - Square End

ALUMASTAR 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#	$d1$ † Diameter		$d2$ Shank Diameter	$l1$ Overall Length	$l2$ Flute Length	$l3$ Reach Length	$d3$ Neck Diameter	1-11	12-24	25-49	50-100
	Decimal	Metric									
41173	.1181	3.000	3.0	38	6	-	-	20.29	19.40	18.52	17.64
41183	.1181	3.000	3.0	38	12	-	-	20.29	19.40	18.52	17.64
41193	.1250	1/8"	3.175	1/8"	1-1/2"	1/4"	-	19.76	18.90	18.04	17.18
41203	.1250	1/8"	3.175	1/8"	1-1/2"	1/2"	-	19.76	18.90	18.04	17.18
41213	.1575	4.000	6.0	50	8	-	-	26.97	25.80	24.62	23.45
41223	.1575	4.000	6.0	50	12	-	-	26.97	25.80	24.62	23.45
41243	.1575	4.000	6.0	65	6	20	3.7	33.76	32.30	30.83	29.36
41273	.1875	3/16"	4.763	3/16"	2"	5/16"	-	20.33	19.45	18.56	17.68
41283	.1875	3/16"	4.763	3/16"	2"	9/16"	-	20.33	19.45	18.56	17.68
41303	.1875	3/16"	4.763	3/16"	3"	7/32"	3/4"	38.17	36.51	34.85	33.19
41313	.1875	3/16"	4.763	3/16"	3"	1"	-	32.81	31.38	29.96	28.53
41343	.1969	5.000	6.0	65	16	-	-	27.83	26.62	25.41	24.20
41363	.1969	5.000	6.0	75	8	20	4.7	47.32	45.27	43.21	41.15
41403	.2362	6.000	6.0	65	19	-	-	26.94	25.77	24.60	23.43
41423	.2362	6.000	6.0	75	10	25	5.7	45.80	43.81	41.82	39.83
39735	.2500	1/4"	6.350	1/4"	2"	3/8"	-	24.29	23.23	22.18	21.12
39737	.2500	1/4"	6.350	1/4"	2"	1/2"	-	24.29	23.23	22.18	21.12
41453	.2500	1/4"	6.350	1/4"	2-1/2"	3/8"	-	25.60	24.49	23.37	22.26
41463	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	-	25.60	24.49	23.37	22.26
41473	.2500	1/4"	6.350	1/4"	3"	1"	-	38.81	37.13	35.44	33.75
41475	.2500	1/4"	6.350	1/4"	3"	1-1/4"	-	38.81	37.13	35.44	33.75
41493	.2500	1/4"	6.350	1/4"	4"	3/8"	1-1/8"	46.28	44.26	42.25	40.24
41503	.2500	1/4"	6.350	1/4"	4"	3/8"	2-1/8"	51.65	49.40	47.16	44.91
41511	.2500	1/4"	6.350	1/4"	4"	1-1/2"	-	40.92	39.14	37.36	35.58
41513	.2500	1/4"	6.350	1/4"	4"	1-5/8"	-	40.92	39.14	37.36	35.58
41543	.2756	7.000	8.0	65	19	-	-	41.32	39.52	37.73	35.93
41563	.2756	7.000	8.0	75	12	25	6.4	62.08	59.38	56.68	53.98
41593	.3125	5/16"	7.938	5/16"	2-1/2"	7/16"	-	35.56	34.01	32.47	30.92
41603	.3125	5/16"	7.938	5/16"	2-1/2"	3/4"	-	35.56	34.01	32.47	30.92
41623	.3125	5/16"	7.938	5/16"	4"	7/16"	1-1/8"	60.72	58.08	55.44	52.80
39739	.3150	8.000	8.0	50	12	-	-	33.60	32.14	30.68	29.22
41663	.3150	8.000	8.0	65	19	-	-	37.43	35.81	34.18	32.55
41683	.3150	8.000	8.0	75	12	25	7.4	56.49	54.03	51.58	49.12
41685	.3150	8.000	8.0	75	26	-	-	50.95	48.73	46.52	44.30
41687	.3150	8.000	8.0	75	30	-	-	50.95	48.73	46.52	44.30
41693	.3150	8.000	8.0	100	12	55	7.4	69.26	66.25	63.24	60.23

continued →

Series 143M (continued)

.3750" - .6299"
(9.525mm - 16.000mm)

EDP#	$d1$ †		$d2$	$l1$	$l2$	$l3$	$d3$	1-11	12-24	25-49	50-100
	Decimal	Diameter									
39741	.3750	3/8"	9.525	3/8"	2"	1/2"	-	37.41	35.78	34.16	32.53
41713	.3750	3/8"	9.525	3/8"	2-1/2"	1/2"	-	41.77	39.95	38.14	36.32
39743	.3750	3/8"	9.525	3/8"	2-1/2"	3/4"	-	41.77	39.95	38.14	36.32
41723	.3750	3/8"	9.525	3/8"	2-1/2"	7/8"	-	41.77	39.95	38.14	36.32
41733	.3750	3/8"	9.525	3/8"	3"	1"	-	53.84	51.50	49.16	46.82
41735	.3750	3/8"	9.525	3/8"	3"	1-1/4"	-	53.84	51.50	49.16	46.82
41737	.3750	3/8"	9.525	3/8"	3-1/2"	1-1/2"	-	57.78	55.26	52.75	50.24
41763	.3750	3/8"	9.525	3/8"	4"	1/2"	2-1/8"	.355"	70.59	67.52	64.45
41773	.3750	3/8"	9.525	3/8"	4"	1-5/8"	-	59.86	57.26	54.65	52.05
42363	.3750	3/8"	9.525	3/8"	4"	2"	-	59.86	57.26	54.65	52.05
41783	.3750	3/8"	9.525	3/8"	6"	1/2"	4"	.355"	106.95	102.30	97.65
39745	.3937		10.000	10.0	50	14	-	57.75	55.24	52.73	50.22
41803	.3937		10.000	10.0	70	24	-	62.85	60.12	57.38	54.65
41805	.3937		10.000	10.0	75	30	-	66.18	63.31	60.43	57.55
41843	.3937		10.000	10.0	100	12	35	9.4	83.79	80.15	76.50
41853	.3937		10.000	10.0	100	12	55	9.4	89.15	85.27	81.40
41863	.3937		10.000	10.0	150	12	110	9.4	124.92	119.49	114.06
39747	.4724		12.000	12.0	65	16	-	65.94	63.07	60.21	57.34
39749	.4724		12.000	12.0	75	26	-	70.30	67.24	64.19	61.13
41883	.4724		12.000	12.0	75	32	-	70.30	67.24	64.19	61.13
41893	.4724		12.000	12.0	100	50	-	91.92	87.92	83.93	79.93
41903	.4724		12.000	12.0	100	16	40	11.4	103.24	98.75	94.26
41913	.4724		12.000	12.0	100	16	55	11.4	103.24	98.75	94.26
41923	.4724		12.000	12.0	150	16	110	11.4	157.81	150.95	144.09
39751	.5000	1/2"	12.700	1/2"	2-1/2"	5/8"	-	62.56	59.84	57.12	54.40
39753	.5000	1/2"	12.700	1/2"	2-1/2"	3/4"	-	62.56	59.84	57.12	54.40
41933	.5000	1/2"	12.700	1/2"	3"	5/8"	-	66.79	63.89	60.98	58.08
39755	.5000	1/2"	12.700	1/2"	3"	1"	-	66.79	63.89	60.98	58.08
41943	.5000	1/2"	12.700	1/2"	3"	1-1/4"	-	66.79	63.89	60.98	58.08
41945	.5000	1/2"	12.700	1/2"	3-1/2"	1-1/2"	-	85.26	81.55	77.85	74.14
41963	.5000	1/2"	12.700	1/2"	4"	1-5/8"	-	87.33	83.53	79.74	75.94
41965	.5000	1/2"	12.700	1/2"	4"	1-3/4"	-	87.33	83.53	79.74	75.94
41973	.5000	1/2"	12.700	1/2"	4"	2"	-	87.33	83.53	79.74	75.94
41983	.5000	1/2"	12.700	1/2"	4"	5/8"	2-1/8"	.475"	98.06	93.80	89.53
41993	.5000	1/2"	12.700	1/2"	6"	5/8"	4-1/8"	.475"	149.93	143.41	136.89
42003	.5000	1/2"	12.700	1/2"	6"	3-1/8"	-	128.48	122.89	117.31	111.72
39757	.6250	5/8"	15.875	5/8"	3"	3/4"	-	123.76	118.38	113.00	107.62
42013	.6250	5/8"	15.875	5/8"	3-1/2"	3/4"	-	127.33	121.79	116.26	110.72
39759	.6250	5/8"	15.875	5/8"	3-1/2"	1"	-	127.33	121.79	116.26	110.72
42016	.6250	5/8"	15.875	5/8"	3-1/2"	1-1/4"	-	127.33	121.79	116.26	110.72
42021	.6250	5/8"	15.875	5/8"	4"	1-1/2"	-	133.12	127.34	121.55	115.76
42023	.6250	5/8"	15.875	5/8"	4"	1-5/8"	-	133.12	127.34	121.55	115.76
42025	.6250	5/8"	15.875	5/8"	4"	1-3/4"	-	133.12	127.34	121.55	115.76
42373	.6250	5/8"	15.875	5/8"	4"	2-1/8"	-	133.12	127.34	121.55	115.76
42033	.6250	5/8"	15.875	5/8"	6"	3/4"	2-3/8"	.590"	185.81	177.73	169.65
42043	.6250	5/8"	15.875	5/8"	6"	3/4"	4-3/8"	.590"	196.54	187.99	179.45
42053	.6250	5/8"	15.875	5/8"	6"	3-1/4"	-	175.08	167.46	159.85	152.24
42083	.6299		16.000	16.0	100	40	-	140.12	134.02	127.93	121.84
42103	.6299		16.000	16.0	100	20	40	15.4	145.48	139.15	132.83
42113	.6299		16.000	16.0	125	20	60	15.4	185.90	177.82	169.73
42123	.6299		16.000	16.0	150	20	110	15.4	206.90	197.90	188.91

EDP#	d_1 †			d_2 Shank Diameter	l_1 Overall Length	l_2 Flute Length	l_3 Reach Length	d_3 Neck Diameter	1-11	12-24	25-49	50-100
	Decimal	Diameter	Metric									
42133	.7500	3/4"	19.050	3/4"	4"	1"	-	-	170.34	162.93	155.53	148.12
42136	.7500	3/4"	19.050	3/4"	4"	1-1/4"	-	-	170.34	162.93	155.53	148.12
42141	.7500	3/4"	19.050	3/4"	4"	1-1/2"	-	-	170.34	162.93	155.53	148.12
42143	.7500	3/4"	19.050	3/4"	4"	1-5/8"	-	-	170.34	162.93	155.53	148.12
42145	.7500	3/4"	19.050	3/4"	4"	1-3/4"	-	-	170.34	162.93	155.53	148.12
42153	.7500	3/4"	19.050	3/4"	5"	2-1/4"	-	-	224.92	215.14	205.36	195.58
42155	.7500	3/4"	19.050	3/4"	5"	2-1/2"	-	-	224.92	215.14	205.36	195.58
42163	.7500	3/4"	19.050	3/4"	6"	1"	2-1/2"	.715"	244.67	234.04	223.40	212.76
42173	.7500	3/4"	19.050	3/4"	6"	1"	4-3/8"	.715"	252.25	241.29	230.32	219.35
42193	.7500	3/4"	19.050	3/4"	6"	3-1/4"	-	-	237.16	226.85	216.54	206.23
42203	.7874		20.000	20.0	100	25	-	-	228.69	218.75	208.80	198.86
42213	.7874		20.000	20.0	100	32	-	-	228.69	218.75	208.80	198.86
42223	.7874		20.000	20.0	100	20	40	19.0	234.05	223.87	213.70	203.52
42226	.7874		20.000	20.0	125	20	60	19.0	271.02	259.24	247.45	235.67
42233	.7874		20.000	20.0	150	20	85	19.0	314.05	300.40	286.74	273.09
42236	.7874		20.000	20.0	150	20	110	19.0	319.44	305.55	291.66	277.77
42243	.9843		25.000	25.0	100	38	-	-	263.88	252.41	240.93	229.46
42283	.9843		25.000	25.0	100	25	50	24.0	269.22	257.51	245.81	234.10
42286	.9843		25.000	25.0	125	25	65	24.0	336.50	321.87	307.24	292.61
42291	.9843		25.000	25.0	150	25	90	24.0	422.12	403.77	385.41	367.06
42293	1.000	1"	25.400	1"	4"	1"	-	-	256.00	244.87	233.74	222.61
42303	1.000	1"	25.400	1"	4"	1-5/8"	-	-	256.00	244.87	233.74	222.61
42313	1.000	1"	25.400	1"	5"	2"	-	-	316.02	302.28	288.54	274.80
42343	1.000	1"	25.400	1"	6"	1-1/4"	3-3/8"	.960"	409.45	391.64	373.84	356.04
42353	1.000	1"	25.400	1"	6"	3-1/4"	-	-	393.38	376.28	359.17	342.07

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MATERIAL HARDNESS (Rc)

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