



A3

**HIGH PERFORMANCE
END MILL SERIES**

GARRT[®] TOOL
High Performance Solid Carbide

THE NEXT GENERATION
FOR HIGH VELOCITY
MACHINING OF ALUMINUM



WHY CHOOSE THE GARR A3 H/P END MILL?

Solves harmonic imbalance in HVM

This new series offers a free cutting, polished flute with a proprietary geometry designed for High Velocity Machining. A harmonically balanced tool, the A3 is capable of running up to 40,000 RPM. GARR TOOL recommends the use of high-performance tool holding and balancing systems to utilize the full capabilities of this next generation end mill.

High performance proprietary geometry

Improved end geometry over our successful 143M Series means stronger corners and superior floor finishes while achieving the more aggressive plunge and ramp parameters common in HVM.

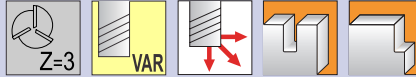
Alterations and specials

Chip splitters or a neck on the shank can be added to the A3 Series with a 48-hour turnaround time for 12 pieces or less.

For HVM applications that require a non-standard corner radius option, we recommend a complete 2-week special for best results.



Series A3

.1575" - .2500"
(4.000mm - 6.350mm)

TOLERANCES

d_1	+0.001" - .001" (+.000mm - .025mm)
d_2	h6
r	+0.001" - .001" (+.025 - .025mm)

Variable Helix End Mill

Fräser mit Einer Variablen Spiralgeometrie

Fresa de Hélice Variable

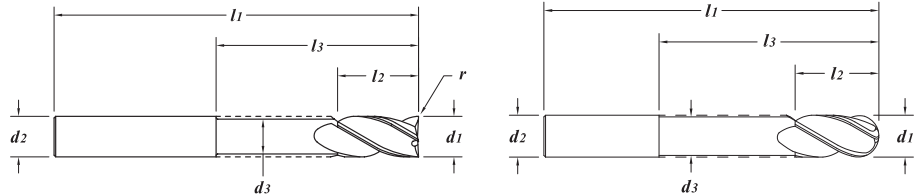
Fraise Avec un Angle Hélice Variable

Fresa ad Elica Variabile

不等螺旋铣刀



Solid submicron grain carbide end mill - center cutting
Engineered for High Velocity Machining of Aluminium
 Proprietary geometry with polished flutes breaks up harmonics
 Improved end geometry provides superior floor finishes and increased plunge rates
 Capable of running up to 40,000 RPM - reduces vibration and balance issues
 Chip splitters and neck on shank can be added within 48 hours



Hochleistungs - Vollhartmetallfräser aus Feinkornhartmetall - Zentrumschnitt
Entwickelt für die Hochgeschwindigkeitsbearbeitung von Aluminium
 Proprietäre Geometrie mit polierten Flöten bricht Harmonische auf
 Die verbesserte Endgeometrie bietet hervorragende Bodenbeläge und erhöhte Eintauchraten
 Kann bis zu 40.000 U / min laufen - reduziert Vibrations- und Gleichgewichtsprobleme
 Chip spalter und Hals am Schaft können innerhalb von 48 Stunden hinzugefügt werden



Fresa de submicrograno sólido carburo de alto rendimiento - corte centrado
Diseñado para el mecanizado de aluminio de alta velocidad
 La geometría patentada con flautas pulidas rompe los armónicos
 La geometría del extremo mejorada proporciona acabados de piso superiores y mayores tasas de inmersión
 Capaz de funcionar hasta 40.000 RPM, reduce los problemas de vibración y equilibrio
 Los divisores de viruta y el cuello en el vástago se pueden agregar en 48 horas



Fraises carbure submicrograin - coupe au centre
Conçu pour l'usinage à haute vitesse de l'aluminium
 La géométrie propriétaire avec des flûtes polies brise les harmoniques
 La géométrie améliorée des extrémités offre des finitions de plancher supérieures et des taux de plongée accrus
 Capable de fonctionner jusqu'à 40000 tr / min - réduit les problèmes de vibration et d'équilibre
 Les séparateurs de copeaux et le col sur la tige peuvent être ajoutés dans les 48 heures



Fresa sub-micrograno metallo duro - taglio al centro
Progettato per la lavorazione ad alta velocità dell'alluminio
 La geometria proprietaria con flauti levigati rompe le armoniche
 La geometria delle estremità migliorata offre finiture del pavimento superiori e maggiori velocità di immersione
 In grado di funzionare fino a 40.000 giri / min - riduce i problemi di vibrazione e bilanciamento
 I separatori di trucioli e il collo sul gambo possono essere aggiunti entro 48 ore



超细晶粒整体硬质合金立铣刀 - 中心切削
专为铝的高速加工而设计
 专有的几何形状和抛光的凹槽可以消除谐波
 改进的端部几何形状可提供出色的地板光洁度和增加的切入率
 能够运行高达40,000RPM-减少振动和平衡问题
 切屑分离器和刀柄上的颈部可在48小时内添加

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
	Decimal	Metric						
07000	.1575	4.000	6.0	50	12	-	14	3.70
07001	.1575	4.000	6.0	50	12	0.20	14	3.70
07002	.1575	4.000	6.0	50	12	0.50	14	3.70
07003	.1575	4.000	6.0	50	12	1.00	14	3.70
07004	.1875	3/16"	4.763	3/16"	2"	1/2"	9/16"	.170"
07005	.1875	3/16"	4.763	3/16"	2"	1/2"	.015"	9/16"
07006	.1875	3/16"	4.763	3/16"	2"	1/2"	.030"	9/16"
07007	.1875	3/16"	4.763	3/16"	2"	1/2"	.060"	9/16"
07008	.1875	3/16"	4.763	3/16"	2"	1/2"	BALL	9/16"
07009	.1969	5.000	6.0	65	16	-	26	4.70
07010	.1969	5.000	6.0	65	16	0.20	26	4.70
07011	.1969	5.000	6.0	65	16	0.50	26	4.70
07012	.1969	5.000	6.0	65	16	1.00	26	4.70
07013	.2362	6.000	6.0	65	19	-	26	5.70
07014	.2362	6.000	6.0	65	19	0.20	26	5.70
07015	.2362	6.000	6.0	65	19	0.50	26	5.70
07016	.2362	6.000	6.0	65	19	1.00	26	5.70
07017	.2362	6.000	6.0	65	19	1.50	26	5.70
07018	.2362	6.000	6.0	65	19	2.00	26	5.70
07019	.2362	6.000	6.0	65	19	BALL	26	5.70
07020	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	-	-
07021	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.015"	-
07022	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.030"	-
07023	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.060"	-
07024	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	.090"	-
07025	.2500	1/4"	6.350	1/4"	2-1/2"	3/4"	BALL	-
07026	.2500	1/4"	6.350	1/4"	3"	1"	-	-
07027	.2500	1/4"	6.350	1/4"	3"	1"	.030"	-
07028	.2500	1/4"	6.350	1/4"	3"	1"	.060"	-
07029	.2500	1/4"	6.350	1/4"	3"	3/8"	-	1-1/8"
07030	.2500	1/4"	6.350	1/4"	3"	3/8"	.015"	1-1/8"
07031	.2500	1/4"	6.350	1/4"	3"	3/8"	.030"	1-1/8"
07032	.2500	1/4"	6.350	1/4"	3"	3/8"	.060"	1-1/8"

EDP#	d_1 †		d_2	l_1	l_2	r	l_3	d_3
	Decimal	Diameter Metric	Shank Diameter	Overall Length	Flute Length	Corner Radius	Reach Length	Neck Diameter
07033	.3150	8.000	8.0	65	19	-	26	7.40
07034	.3150	8.000	8.0	65	19	0.20	26	7.40
07035	.3150	8.000	8.0	65	19	0.50	26	7.40
07036	.3150	8.000	8.0	65	19	1.00	26	7.40
07037	.3150	8.000	8.0	65	19	1.50	26	7.40
07038	.3150	8.000	8.0	65	19	2.00	26	7.40
07039	.3150	8.000	8.0	65	19	3.00	26	7.40
07040	.3150	8.000	8.0	65	19	BALL	26	7.40
07041	.3750	3/8"	9.525	3/8"	2-1/2"	1"	-	-
07042	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.010"	-
07043	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.015"	-
07044	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.020"	-
07045	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.030"	-
07046	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.060"	-
07047	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.090"	-
07048	.3750	3/8"	9.525	3/8"	2-1/2"	1"	.120"	-
07049	.3750	3/8"	9.525	3/8"	2-1/2"	1"	BALL	-
07050	.3750	3/8"	9.525	3/8"	3"	1-1/4"	-	-
07051	.3750	3/8"	9.525	3/8"	3"	1-1/4"	.015"	-
07052	.3750	3/8"	9.525	3/8"	3"	1-1/4"	.030"	-
07053	.3750	3/8"	9.525	3/8"	3"	1-1/4"	.060"	-
07054	.3750	3/8"	9.525	3/8"	3"	1-1/4"	.120"	-
07055	.3750	3/8"	9.525	3/8"	3"	1/2"	-	1-1/8"
07056	.3750	3/8"	9.525	3/8"	3"	1/2"	.015"	1-1/8"
07057	.3750	3/8"	9.525	3/8"	3"	1/2"	.030"	1-1/8"
07058	.3750	3/8"	9.525	3/8"	3"	1/2"	.060"	1-1/8"
07059	.3750	3/8"	9.525	3/8"	3"	1/2"	.090"	1-1/8"
07060	.3750	3/8"	9.525	3/8"	3"	1/2"	.120"	1-1/8"
07061	.3750	3/8"	9.525	3/8"	4"	1/2"	-	2-1/8"
07062	.3750	3/8"	9.525	3/8"	4"	1/2"	.015"	2-1/8"
07063	.3750	3/8"	9.525	3/8"	4"	1/2"	.020"	2-1/8"
07064	.3750	3/8"	9.525	3/8"	4"	1/2"	.030"	2-1/8"
07065	.3750	3/8"	9.525	3/8"	4"	1/2"	.060"	2-1/8"
07066	.3750	3/8"	9.525	3/8"	4"	1/2"	.090"	2-1/8"
07067	.3750	3/8"	9.525	3/8"	4"	1/2"	.120"	2-1/8"
07068	.3937	10.000	10.0	70	22	-	30	9.40
07069	.3937	10.000	10.0	70	22	0.20	30	9.40
07070	.3937	10.000	10.0	70	22	0.50	30	9.40
07071	.3937	10.000	10.0	70	22	1.00	30	9.40
07072	.3937	10.000	10.0	70	22	1.50	30	9.40
07073	.3937	10.000	10.0	70	22	2.00	30	9.40
07074	.3937	10.000	10.0	70	22	3.00	30	9.40
07075	.3937	10.000	10.0	70	22	BALL	30	9.40
07076	.3937	10.000	10.0	100	40	-	-	-
07077	.3937	10.000	10.0	100	22	-	55	9.40
07078	.4724	12.000	12.0	88	26	-	38	11.40
07079	.4724	12.000	12.0	88	26	0.20	38	11.40
07212	.4724	12.000	12.0	88	26	0.50	38	11.40
07081	.4724	12.000	12.0	88	26	1.00	38	11.40
07082	.4724	12.000	12.0	88	26	1.50	38	11.40
07083	.4724	12.000	12.0	88	26	2.00	38	11.40
07084	.4724	12.000	12.0	88	26	3.00	38	11.40
07085	.4724	12.000	12.0	88	26	4.00	38	11.40
07086	.4724	12.000	12.0	88	26	BALL	38	11.40

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MATERIAL HARDNESS (Rc)

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continued →

Series A3 (continued)

.4724" - .6299"
(12.000mm - 16.000mm)

EDP#	$d1$ † Diameter		$d2$ Shank Diameter	$l1$ Overall Length	$l2$ Flute Length	r Corner Radius	$l3$ Reach Length	$d3$ Neck Diameter
	Decimal	Metric						
07213	.4724	12.000	12.0	88	36	-	-	-
07088	.4724	12.000	12.0	88	36	0.20	-	-
07089	.4724	12.000	12.0	88	36	0.50	-	-
07090	.4724	12.000	12.0	88	36	1.00	-	-
07091	.4724	12.000	12.0	88	36	1.50	-	-
07092	.4724	12.000	12.0	88	36	2.00	-	-
07093	.4724	12.000	12.0	88	36	3.00	-	-
07094	.4724	12.000	12.0	88	36	4.00	-	-
07095	.4724	12.000	12.0	88	36	BALL	-	-
07096	.5000 1/2"	12.700	1/2"	3"	1-1/4"	-	-	-
07097	.5000 1/2"	12.700	1/2"	3"	1-1/4"	.010"	-	-
07098	.5000 1/2"	12.700	1/2"	3"	1-1/4"	.015"	-	-
07099	.5000 1/2"	12.700	1/2"	3"	1-1/4"	.020"	-	-
07100	.5000 1/2"	12.700	1/2"	3"	1-1/4"	.030"	-	-
07101	.5000 1/2"	12.700	1/2"	3"	1-1/4"	.060"	-	-
07102	.5000 1/2"	12.700	1/2"	3"	1-1/4"	.090"	-	-
07103	.5000 1/2"	12.700	1/2"	3"	1-1/4"	.120"	-	-
07104	.5000 1/2"	12.700	1/2"	3"	1-1/4"	.190"	-	-
07105	.5000 1/2"	12.700	1/2"	3"	1-1/4"	BALL	-	-
07106	.5000 1/2"	12.700	1/2"	4"	2-1/16"	-	-	-
07107	.5000 1/2"	12.700	1/2"	4"	2-1/16"	.015"	-	-
07108	.5000 1/2"	12.700	1/2"	4"	2-1/16"	.030"	-	-
07109	.5000 1/2"	12.700	1/2"	4"	2-1/16"	.060"	-	-
07110	.5000 1/2"	12.700	1/2"	4"	2-1/16"	.120"	-	-
07111	.5000 1/2"	12.700	1/2"	4"	5/8"	-	2-1/4"	.475"
07112	.5000 1/2"	12.700	1/2"	4"	5/8"	.015"	2-1/4"	.475"
07113	.5000 1/2"	12.700	1/2"	4"	5/8"	.030"	2-1/4"	.475"
07114	.5000 1/2"	12.700	1/2"	4"	5/8"	.060"	2-1/4"	.475"
07115	.5000 1/2"	12.700	1/2"	4"	5/8"	BALL	2-1/4"	.475"
07116	.6250 5/8"	15.875	5/8"	4"	1-5/8"	-	-	-
07214	.6250 5/8"	15.875	5/8"	4"	1-5/8"	.030"	-	-
07118	.6250 5/8"	15.875	5/8"	4"	1-5/8"	.060"	-	-
07119	.6250 5/8"	15.875	5/8"	4"	1-5/8"	.090"	-	-
07120	.6250 5/8"	15.875	5/8"	4"	1-5/8"	.120"	-	-
07121	.6250 5/8"	15.875	5/8"	4"	3/4"	-	2-3/8"	.590"
07122	.6250 5/8"	15.875	5/8"	4"	3/4"	.030"	2-3/8"	.590"
07123	.6250 5/8"	15.875	5/8"	4"	3/4"	.060"	2-3/8"	.590"
07124	.6250 5/8"	15.875	5/8"	4"	3/4"	.120"	2-3/8"	.590"
07125	.6250 5/8"	15.875	5/8"	4"	3/4"	.190"	2-3/8"	.590"
07126	.6299	16.000	16.0	100	24	-	50	15.40
07127	.6299	16.000	16.0	100	24	0.50	50	15.40
07128	.6299	16.000	16.0	100	24	1.00	50	15.40
07129	.6299	16.000	16.0	100	24	1.50	50	15.40
07130	.6299	16.000	16.0	100	24	3.00	50	15.40
07131	.6299	16.000	16.0	100	24	6.00	50	15.40
07132	.6299	16.000	16.0	100	32	-	50	15.40
07133	.6299	16.000	16.0	100	32	0.50	50	15.40
07134	.6299	16.000	16.0	100	32	1.00	50	15.40
07135	.6299	16.000	16.0	100	32	1.50	50	15.40
07136	.6299	16.000	16.0	100	32	3.00	50	15.40
07137	.6299	16.000	16.0	100	32	6.00	50	15.40

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
	Decimal	Diameter	Metric						
07138	.7500	3/4"	19.050	3/4"	4"	1-3/4"	-	-	-
07139	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.015"	-	-
07140	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.030"	-	-
07141	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.060"	-	-
07142	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.078"	-	-
07143	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.094"	-	-
07144	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.120"	-	-
07145	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.156"	-	-
07146	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.190"	-	-
07147	.7500	3/4"	19.050	3/4"	4"	1-3/4"	.250"	-	-
07148	.7500	3/4"	19.050	3/4"	4"	1-3/4"	BALL	-	-
07149	.7500	3/4"	19.050	3/4"	4"	1"	-	2"	.715"
07150	.7500	3/4"	19.050	3/4"	4"	1"	.030"	2"	.715"
07151	.7500	3/4"	19.050	3/4"	4"	1"	.060"	2"	.715"
07152	.7500	3/4"	19.050	3/4"	4"	1"	.090"	2"	.715"
07153	.7500	3/4"	19.050	3/4"	4"	1"	.120"	2"	.715"
07154	.7500	3/4"	19.050	3/4"	4"	1"	.125"	2"	.715"
07155	.7500	3/4"	19.050	3/4"	4"	1"	.160"	2"	.715"
07156	.7500	3/4"	19.050	3/4"	4"	1"	.190"	2"	.715"
07157	.7500	3/4"	19.050	3/4"	5"	2-1/4"	-	-	-
07158	.7500	3/4"	19.050	3/4"	5"	2-1/4"	.030"	-	-
07159	.7500	3/4"	19.050	3/4"	5"	2-1/4"	.060"	-	-
07160	.7500	3/4"	19.050	3/4"	5"	2-1/4"	.120"	-	-
07161	.7500	3/4"	19.050	3/4"	5"	2-1/4"	.125"	-	-
07162	.7500	3/4"	19.050	3/4"	5"	2-1/4"	.190"	-	-
07163	.7500	3/4"	19.050	3/4"	5"	2-1/4"	.250"	-	-
07164	.7500	3/4"	19.050	3/4"	6"	1"	-	3-3/8"	.715"
07165	.7500	3/4"	19.050	3/4"	6"	1"	.030"	3-3/8"	.715"
07166	.7500	3/4"	19.050	3/4"	6"	1"	.060"	3-3/8"	.715"
07167	.7500	3/4"	19.050	3/4"	6"	1"	.090"	3-3/8"	.715"
07168	.7500	3/4"	19.050	3/4"	6"	1"	.125"	3-3/8"	.715"
07169	.7500	3/4"	19.050	3/4"	6"	1"	.250"	3-3/8"	.715"
07170	.7500	3/4"	19.050	3/4"	6"	1"	BALL	3-3/8"	.715"
07171	.7874		20.000	20.0	100	30	-	50	19.4
07172	.7874		20.000	20.0	100	30	0.50	50	19.4
07173	.7874		20.000	20.0	100	30	1.00	50	19.4
07174	.7874		20.000	20.0	100	30	1.50	50	19.4
07175	.7874		20.000	20.0	100	30	3.00	50	19.4
07176	.7874		20.000	20.0	100	30	4.00	50	19.4
07177	.7874		20.000	20.0	100	30	5.00	50	19.4
07178	.7874		20.000	20.0	100	30	6.00	50	19.4
07179	.7874		20.000	20.0	100	30	8.00	50	19.4

70

MATERIAL HARDNESS (Rc)

35

0

continued →

Series A3 (continued)

.7874" - 1.000"
(20.000mm - 25.400mm)

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
	Decimal	Metric						
07180	.7874	20.000	20.0	150	30	-	100	19.40
07181	.7874	20.000	20.0	150	30	0.50	100	19.40
07182	.7874	20.000	20.0	150	30	1.00	100	19.40
07183	.7874	20.000	20.0	150	30	1.50	100	19.40
07184	.7874	20.000	20.0	150	30	3.00	100	19.40
07185	.7874	20.000	20.0	150	30	4.00	100	19.40
07186	.7874	20.000	20.0	150	30	5.00	100	19.40
07187	.7874	20.000	20.0	150	30	6.00	100	19.40
07188	.7874	20.000	20.0	150	30	8.00	100	19.40
07189	1.000	1" 25.400	1"	4"	1-1/4"	-	2"	.950"
07190	1.000	1" 25.400	1"	4"	1-1/4"	.060"	2"	.950"
07191	1.000	1" 25.400	1"	4-1/2"	1-1/4"	-	2-1/2"	.950"
07192	1.000	1" 25.400	1"	4-1/2"	1-1/4"	.030"	2-1/2"	.950"
07193	1.000	1" 25.400	1"	4-1/2"	1-1/4"	.060"	2-1/2"	.950"
07194	1.000	1" 25.400	1"	4-1/2"	1-1/4"	.120"	2-1/2"	.950"
07195	1.000	1" 25.400	1"	4-1/2"	1-1/4"	.125"	2-1/2"	.950"
07196	1.000	1" 25.400	1"	5"	1"	-	2-5/8"	.950"
07197	1.000	1" 25.400	1"	5"	1"	.030"	2-5/8"	.950"
07198	1.000	1" 25.400	1"	5"	1"	.060"	2-5/8"	.950"
07199	1.000	1" 25.400	1"	5"	1"	.125"	2-5/8"	.950"
07200	1.000	1" 25.400	1"	5"	1"	.250"	2-5/8"	.950"
07201	1.000	1" 25.400	1"	5"	1"	BALL	2-5/8"	.950"
07202	1.000	1" 25.400	1"	5"	2-1/4"	-	-	-
07203	1.000	1" 25.400	1"	5"	2-1/4"	.030"	-	-
07204	1.000	1" 25.400	1"	5"	2-1/4"	.060"	-	-
07205	1.000	1" 25.400	1"	5"	2-1/4"	.120"	-	-
07206	1.000	1" 25.400	1"	5"	2-1/4"	.250"	-	-
07207	1.000	1" 25.400	1"	6"	3-1/4"	-	-	-
07208	1.000	1" 25.400	1"	6"	3-1/4"	.030"	-	-
07209	1.000	1" 25.400	1"	6"	3-1/4"	.060"	-	-
07210	1.000	1" 25.400	1"	6"	3-1/4"	.120"	-	-
07211	1.000	1" 25.400	1"	6"	3-1/4"	.250"	-	-

MATERIAL HARDNESS (Rc)

70

35

0

GARR TOOL Milling Guide for Aluminum (Machining Centers with High-Range HP/Torque)

Series A3 End Mills

TECHNICAL

Fractional

Diameter	SLOTTING		SIDE MILLING	FINISHING
	Axial = .5xD	Axial = 1xD	Axial = 2xD Radial = 30%-40%xD	Axial = Max LOC Radial = 2.5%xD
	SFM = Maximum RPM	SFM = Maximum RPM	SFM = Maximum RPM	SFM = up to 80% Max RPM
	CPT (Fz) = 1.5% - 3% of diameter	CPT (Fz) = 1% - 2% of diameter	CPT (Fz) = 2% - 3% of diameter	CPT (Fz) = 1% of diameter
3/16"	.0028" - .0056"	.0018" - .0037"	.0037" - .0056"	.0018"
1/4"	.0037" - .0074"	.0025" - .0050"	.0050" - .0075"	.0025"
5/16"	.0052" - .0104"	.0031" - .0062"	.0062" - .0094"	.0031"
3/8"	.0055" - .0110"	.0037" - .0074"	.0075" - .0112"	.0037"
1/2"	.0075" - .0150"	.0050" - .0100"	.0100" - .0150"	.0050"
5/8"	.0093" - .0186"	.0062" - .0125"	.0125" - .0187"	.0062"
3/4"	.0112" - .0224"	.0075" - .0150"	.0150" - .0225"	.0075"
1"	.0150" - .0300"	.0100" - .0200"	.0200" - .0300"	.0100"

Metric

Diameter	SLOTTING		SIDE MILLING	FINISHING
	Axial = .5xD	Axial = 1xD	Axial = 2xD Radial = 30%-40%xD	Axial = Max LOC Radial = 2.5%xD
	M/Min. = Maximum RPM	M/Min. = Maximum RPM	SFM = Maximum RPM	SFM = up to 80% Max RPM
	CPT (Fz) = 1.5% - 3% of diameter	CPT (Fz) = 1% - 2% of diameter	CPT (Fz) = 2% - 3% of diameter	CPT (Fz) = 1% of diameter
4.0	.060 - .120	.040 - .080	.080 - .120	.040
6.0	.090 - .180	.060 - .120	.120 - .180	.060
8.0	.120 - .240	.080 - .160	.160 - .240	.080
10.0	.150 - .300	.100 - .200	.200 - .300	.100
12.0	.180 - .360	.120 - .240	.240 - .360	.120
16.0	.240 - .480	.160 - .320	.320 - .480	.160
20.0	.300 - .600	.200 - .400	.400 - .600	.200
25.0	.375 - .750	.250 - .500	.500 - .750	.250

END MILL NOTES:

Climb milling recommended for best finish

Contact your OEM for your machine's optimal running parameters

CPT parameters shown are for 2xD LOC tooling and 2.5xD Reach Lengths

CPT may need to be reduced based on machine/tool holding connection

Preferred tool holders: Rego Fix powRgrip or Shrink Fit

NOTE - ABOVE ARE STARTING PARAMETERS ONLY. HIGHER RESULTS MAY BE ACHIEVED WITH OPTIMUM CONDITIONS.

GARR TOOL Milling Guide for Aluminum (Machining Centers with Mid-Range HP/Torque)

Series 142M/143M/A3 End Mills

Fractional

Diameter	SLOTTING		SIDE MILLING
	Axial = .5xD	Axial = 1xD	Axial ≤ 1xD Radial ≤ .5xD
	SFM = 1500 - 2000	SFM = 750 - 1500	SFM = 1500 - 2000
	CPT (Fz) = 1.5% - 2.5% of diameter	CPT (Fz) = 1% - 2% of diameter	CPT (Fz) = 1.5% - 2.5% of diameter
1/8"	.0019" - .0031"	.0013" - .0025"	.0019" - .0031"
3/16"	.0028" - .0047"	.0018" - .0037"	.0028" - .0047"
1/4"	.0037" - .0062"	.0025" - .0050"	.0037" - .0062"
5/16"	.0052" - .0078"	.0031" - .0062"	.0052" - .0078"
3/8"	.0055" - .0094"	.0037" - .0074"	.0055" - .0094"
1/2"	.0075" - .0125"	.0050" - .0100"	.0075" - .0125"
5/8"	.0093" - .0156"	.0062" - .0125"	.0093" - .0156"
3/4"	.0112" - .0188"	.0075" - .0150"	.0112" - .0188"
1"	.0150" - .0250"	.0100" - .0200"	.0150" - .0250"

Metric

Diameter	SLOTTING		SIDE MILLING
	Axial = .5xD	Axial = 1xD	Axial ≤ 1xD Radial ≤ 0.5xD
	M/Min. = 450 - 760	M/Min. = 225 - 450	M/Min. = 450 - 760
	CPT (Fz) = 1.5% - 2.5% of diameter	CPT (Fz) = 1% - 2% of diameter	CPT (Fz) = 1.5% - 2.5% of diameter
3.0	.045 - .075	.030 - .060	.045 - .075
4.0	.060 - .100	.040 - .080	.060 - .100
6.0	.090 - .150	.060 - .120	.090 - .150
8.0	.120 - .200	.080 - .160	.120 - .200
10.0	.150 - .250	.100 - .200	.150 - .250
12.0	.180 - .300	.120 - .240	.180 - .300
16.0	.240 - .400	.160 - .320	.240 - .400
20.0	.300 - .500	.200 - .400	.300 - .500
25.0	.375 - .625	.250 - .500	.375 - .625

END MILL NOTES:

Climb milling recommended for best finish

Contact your OEM for your machine's optimal running parameters

Figures shown are based on 6061 / 7075

CAT 50 Taper holders are recommended for 3/4" and 1" diameter end mills

In controlled slotting tests, 4000 SFM, 1% diameter Chipload Per Flute, and 50% of Dia. axial depth were obtained

In cases for tools with slower SFM (M/Min.), reference Series 242M/842M

For CAT 40 machines using tools over 5/8" diameter, speeds and feeds may need to be reduced by as much as 50%

NOTE - ABOVE ARE STARTING PARAMETERS ONLY. HIGHER RESULTS MAY BE ACHIEVED WITH OPTIMUM CONDITIONS.

GARR TOOL Milling Guide for Aluminum (Machining Centers with Low-Range HP/Torque)

Series 242M/842M/A3 End Mills

TECHNICAL

Fractional

Diameter	SLOTTING		SIDE MILLING
	Axial = .5xD	Axial = 1xD	Axial ≤ 1xD Radial ≤ .5xD
	SFM = 400 - 600	SFM = 300 - 450	SFM = 500 - 650
	CPT (Fz) = .5% - 1.5% of diameter	CPT (Fz) = .5% - 1% of diameter	CPT (Fz) = 1% - 2% of diameter
1/8"	.0006" - .0018"	.0006" - .0012"	.0012" - .0024"
3/16"	.0009" - .0028"	.0009" - .0018"	.0018" - .0036"
1/4"	.0013" - .0038"	.0013" - .0025"	.0025" - .0050"
5/16"	.0016" - .0047"	.0016" - .0031"	.0031" - .0062"
3/8"	.0019" - .0056"	.0019" - .0037"	.0037" - .0074"
1/2"	.0025" - .0075"	.0025" - .0050"	.0050" - .0100"
5/8"	.0031" - .0094"	.0031" - .0062"	.0062" - .0120"
3/4"	.0038" - .0110"	.0038" - .0075"	.0075" - .0150"
1"	.0050" - .0150"	.0050" - .0100"	.0100" - .0200"

Metric

Diameter	SLOTTING		SIDE MILLING
	Axial = .5xD	Axial = 1xD	Axial ≤ 1xD Radial ≤ 0.5xD
	M/Min. = 125 - 180	M/Min. = 90 - 140	M/Min. = 150 - 200
	CPT (Fz) = .5% - 1.5% of diameter	CPT (Fz) = .5% - 1% of diameter	CPT (Fz) = 1% - 2% of diameter
3.0	.015 - .045	.015 - .030	.030 - .060
4.0	.020 - .060	.020 - .040	.040 - .080
6.0	.030 - .090	.030 - .060	.060 - .120
8.0	.040 - .120	.040 - .080	.080 - .160
10.0	.050 - .150	.050 - .100	.100 - .200
12.0	.060 - .180	.060 - .120	.120 - .240
16.0	.080 - .240	.080 - .160	.160 - .320
20.0	.100 - .300	.100 - .200	.200 - .400
25.0	.125 - .375	.125 - .250	.250 - .500

END MILL NOTES:

Climb milling recommended for best finish

Contact your OEM for your machine's optimal running parameters

Figures shown are based on 6061 / 7075

CAT 50 Taper holders are recommended for 3/4" and 1" diameter end mills

For CAT 40 machines using tools over 5/8" diameter, speeds and feeds may need to be reduced by as much as 50%

NOTE - ABOVE ARE STARTING PARAMETERS ONLY. HIGHER RESULTS MAY BE ACHIEVED WITH OPTIMUM CONDITIONS.

GARR TOOL[®]

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