

Solid Carbide Endmills Feeds and Speeds

Material	BRINELL HARDNESS (BHN)	SURFACE SPEED (SFM)	Coating 1st recommendation	Coating 2nd recommendation	FEED PER TOOTH BY ENDMILL DIAMETER (FPT)				
					1/16"	1/8"	1/4"	1/2"	3/4"+
Aluminum Alloys	-150	600-1200	TiB2	ZrN	0.001	0.001	0.002	0.005	0.01
Brass and Bronze	-200	250-350	FeinAL-Tribo	All4, CrN	0.001	0.002	0.003	0.005	0.01
Low Carbon Steel - 1018, 12112, 1108, 1213	175	200-400	All4	FeinAL, TiXCo4	0.0005	0.001	0.0015	0.003	0.005
Medium Carbon Steel - 1040, 1140, 4340, 8640	250	200-400	All4	TiXCo4, AlTiN, nACo	0.0005	0.001	0.0015	0.003	0.005
Cast Iron - Gray	200	250-350	All4	TiCN-MP, nACRo3,	0.0005	0.001	0.0015	0.003	0.005
Cast Iron - Ductile	250	200-300	All4	TiXCo4, nACRo3*	0.0005	0.0005	0.001	0.002	0.004
Copper	-200	400-600	CrN, ZrN	FeinAL-Tribo, TiCN	0.0005	0.001	0.002	0.003	0.006
Tool Steel - P20, A2, D2, H12	250	200-300	All4	FeinAL, TiXCo4	0.0005	0.0005	0.0015	0.003	0.005
Hardened Steel - 40RC +	-	30-60	TiXCo4	AlTiN*, nACo*, (nACRo)	0.0003	0.0005	0.001	0.002	0.005
Free Stainless Steel - 303, 410, 416, 440F	-250	275-350	All4	FeinAL, TiXCo4	0.0005	0.001	0.002	0.005	0.006
Moderate Stainless Steel - 304, 316	300	250-300	All4	FeinAL, TiXCo4	0.0005	0.0005	0.001	0.002	0.003
Hard Stainless Steel - 17-4PH, 316L, AM350	450	200-250	All4	AlTiN*, nACRo3*	0.0005	0.0005	0.001	0.002	0.003
Titanium Alloys - Soft	-150	150-250	All4	TiXCo4, nACRo3*	0.0003	0.0005	0.0008	0.0025	0.005
Titanium Alloys - 6AL-4V, ASTM B367, Grades C-3, C-4	-250	100-200	All4	TiXCo4, nACRo3*	0.0003	0.0005	0.0008	0.0025	0.005
High Temp Alloys - Inconel, Hastelloy, Waspaloy	250	30-60	All4, TiXCo4	nACRo3*, AlTiN*	0.0003	0.0005	0.0008	0.0015	0.003

Al < 12%

* Version with LGD etching recommended

HSS Endmills Reduce SFM 50%

With coating, add 10% to the SFPM