



5 & 6-Flute, Finishing Endmills, Standard, Neck Relief & Chip Control, 45 Degree Helix, Extra High Performance Endmills

- RedLine 6-flute Finishers are the 1st choice for milling a wide variety of difficult to machine alloys. Our high performance AlTiN coating allows you to run our tools wet or dry in many materials with excellent tool life.

- These Extra High Performance tools can be found on pages 81-83.

Note: For added tool life apply tools with a corner radius. Do not use tools with Weldon Flats in milling chucks or collet chucks for high speed applications.

6-Flute Finishers Speeds & Feeds

Material	Grades	Cut Type	Axial DOC	Radial DOC	SFM	Feed by Endmill Diameter (IPT)								
						1/8 (.1250)	3/16 (.1875)	1/4 (.2500)	5/16 (.3125)	3/8 (.3750)	1/2 (.5000)	5/8 (.625)	3/4 (.7500)	1 (1.000)
P - Steels														
High Strength Tool Steel	Hardness < 36 HRC A2, D2, P20, H11, H13, S2, 01	Rough	1 x D	.1 x D	600	.0010	.0013	.0020	.0025	.0030	.0040	.0050	.0060	.0080
		Finish	2 x D	.01 x D	450	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
	Hardness 36 - 42 HRC A2, D2, P20, H11, H13, S2, 01	Rough	1 x D	.1 x D	600	.0010	.0013	.0020	.0025	.0030	.0040	.0050	.0060	.0080
		Finish	2 x D	.01 x D	450	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
	Hardness 43 - 50 HRC A2, D2, P20, H11, H13, S2, 01	Rough	1 x D	.08 x D	500	.0006	.0009	.0012	.0014	.0017	.0023	.0029	.0034	.0046
		Finish	2 x D	.015 X D	400	.0003	.0005	.0007	.0007	.0010	.0014	.0018	.0020	.0023
	Hardness 51 - 63 HRC A2, D2, S2, 01	Rough	1 x D	.08 x D	350	.0004	.0007	.0010	.0013	.0015	.0020	.0025	.0030	.0040
		Finish	2 x D	.015 X D	300	.0003	.0004	.0005	.0006	.0007	.0010	.0013	.0015	.0020
M - Stainless Steels														
Austenitic	301-304L, 310, 316L, 321, 347	Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.01 x D	450	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
Martensitic	403, 410, 416, 420, 430, 431, 440	Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.01 x D	450	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.015 x D	400	.0003	.0005	.0007	.0007	.0010	.0014	.0018	.0020	.0023
K - Cast Irons														
Ductile	A536, J434, 60-40-18	Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.01 x D	450	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
Gray	A48, A436, A319, Class 20, G4000	Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.01 x D	450	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
Malleable	A220, A602, J158	Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.015 X D	300	.0003	.0004	.0005	.0006	.0007	.0010	.0013	.0015	.0020
N - Non-Ferrous														
Brass/Bronze	Aluminum Bronze Low Silicon Bronze	Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.01 x D	450	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.01 x D	450	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
Copper		Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.01 x D	450	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
Magnesium		Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.01 x D	450	.0005	.0008	.0010	.0013	.0015	.0020	.0025	.0030	.0040
S - High Temp Alloys														
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.015 X D	300	.0003	.0004	.0005	.0006	.0007	.0010	.0013	.0015	.0020
Iron Base	Incoloy 800-802, Multimet N-155, Timkin 16-25-6, Carpenter 22-b3	Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.015 X D	300	.0003	.0004	.0005	.0006	.0007	.0010	.0013	.0015	.0020
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoly, Udimet 500 & 700	Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.015 X D	300	.0003	.0004	.0005	.0006	.0007	.0010	.0013	.0015	.0020
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	Rough	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Rough <10,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Finish	2 x D	.015 x D	400	.0003	.0005	.0007	.0007	.0010	.0014	.0018	.0020	.0023

D = tool diameter. Reduce feed rates by 20% when using long length tools. Starting parameters shown.

NOTE: Speeds and Feeds listed are estimated and will vary by application.