



7-Flute, High Performance, Finisher Endmills, Square & Corner Radius, 45 Degree Helix.

- RedLine 7-flute Finishers are designed for increased feeds for finer finishes. For added tool life apply tools with a corner radius.
- These Extra High Performance tools can be found on pages 84-85.

7-Flute Finishers Speeds & Feeds

Material	Grades	Cut Type	Axial DOC	Radial DOC	Stub/Reg SFM	Long/X-Long SFM	Feed by Endmill Diameter (IPT)						
							AITIN/AICrNX	AITIN/AICrNX	1/8 (.1250)	1/4 (.2500)	3/8 (.3750)	1/2 (.5000)	5/8 (.6250)
P - Steels													
High Strength Tool Steel	A2, D2, P20, H11, H13, S2, O1	Slotting	.5 x D	1 x D	275	220	.0004	.0008	.0012	.0015	.0019	.0023	.0031
		Peripheral - Rough	1.25 x D	.3 x D	350	280	.0005	.0011	.0016	.0021	.0026	.0032	.0042
		Peripheral - HEM	3 x D	.05 x D	390	312	.0018	.0037	.0055	.0074	.0092	.0110	.0147
		Finish	2 x D	.015 x D	350	280	.0005	.0011	.0016	.0021	.0026	.0032	.0042
High Strength Tool Steel > 32 HRC	Reduce SFM by 40%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Low Carbon	A36, 12L14, 12L15, 1005, 1018, 1020, 1108-1119, 1213-1215, 1513-1518, 4012, 5015, 9310	Slotting	.5 x D	1 x D	325	260	.0005	.0010	.0015	.0020	.0025	.0030	.0040
		Peripheral - Rough	1.25 x D	.3 x D	400	320	.0007	.0014	.0020	.0027	.0034	.0041	.0055
		Peripheral - HEM	3 x D	.05 x D	450	360	.0022	.0044	.0066	.0088	.0109	.0131	.0175
		Finish	2 x D	.015 x D	400	320	.0007	.0014	.0021	.0028	.0035	.0042	.0056
Medium Carbon	1040-1095, 1140-1151, 1330-1345, 1520-1572, 4023-4063, 4120-4161, 4330-4340, 4620-4640, 8620-8660, 8740-8750, 6150, 51000, 52100	Slotting	.5 x D	1 x D	300	240	.0005	.0009	.0014	.0018	.0023	.0027	.0037
		Peripheral - Rough	1.25 x D	.3 x D	375	300	.0006	.0012	.0019	.0025	.0031	.0037	.0050
		Peripheral - HEM	3 x D	.05 x D	415	332	.0021	.0043	.0064	.0085	.0107	.0129	.0170
		Finish	2 x D	.015 x D	375	300	.0006	.0013	.0019	.0025	.0032	.0038	.0051
M - Stainless Steels													
Austenitic	301-304L, 310, 316L, 321, 347	Slotting	.5 x D	1 x D	275	220	.0004	.0009	.0013	.0017	.0021	.0026	.0034
		Peripheral - Rough	1.25 x D	.3 x D	350	280	.0006	.0012	.0018	.0023	.0029	.0035	.0047
		Peripheral - HEM	3 x D	.05 x D	390	312	.0021	.0042	.0063	.0083	.0104	.0125	.0167
		Finish	2 x D	.015 x D	350	280	.0006	.0012	.0018	.0024	.0030	.0036	.0048
Austenitic > 32 HRC	Reduce SFM by 20%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Martensitic	403, 410, 416, 420, 430, 431, 440	Slotting	.5 x D	1 x D	300	240	.0005	.0009	.0014	.0018	.0023	.0027	.0037
		Peripheral - Rough	1.25 x D	.3 x D	375	300	.0006	.0012	.0019	.0025	.0031	.0037	.0050
		Peripheral - HEM	3 x D	.05 x D	415	332	.0021	.0043	.0064	.0086	.0107	.0129	.0172
		Finish	2 x D	.015 x D	375	300	.0006	.0013	.0019	.0025	.0032	.0038	.0051
Precipitation Hardening	12/8, 15/5, 17/4, AM-350/355/363, PH13-8MO, PH14-8/MO	Slotting	.5 x D	1 x D	250	200	.0004	.0007	.0011	.0014	.0018	.0021	.0029
		Peripheral - Rough	1.25 x D	.3 x D	325	260	.0005	.0010	.0015	.0019	.0024	.0029	.0039
		Peripheral - HEM	3 x D	.05 x D	360	288	.0017	.0033	.0050	.0067	.0083	.0100	.0133
		Finish	1.5 x D	.015 x D	325	260	.0005	.0010	.0015	.0020	.0025	.0030	.0040
Precipitation Hardening > 32 HRC	Reduce SFM by 20%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
K - Cast Irons													
Ductile	A536, J434, 60-40-18	Slotting	1 x D	1 x D	325	260	.0005	.0010	.0015	.0020	.0025	.0030	.0040
		Peripheral - Rough	1.25 x D	.5 x D	400	320	.0007	.0014	.0020	.0027	.0034	.0041	.0055
		Peripheral - HEM	2 x D	.15 x D	450	360	.0022	.0044	.0066	.0088	.0109	.0131	.0175
		Finish	1.5 x D	.015 x D	400	320	.0007	.0014	.0021	.0028	.0035	.0042	.0056
Gray	A48, A436, A319, Class 20, G4000	Slotting	.5 x D	1 x D	300	240	.0004	.0009	.0013	.0018	.0022	.0027	.0035
		Peripheral - Rough	1.25 x D	.3 x D	375	300	.0005	.0010	.0015	.0019	.0024	.0029	.0039
		Peripheral - HEM	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	450	360	.0006	.0012	.0018	.0024	.0030	.0036	.0048
Malleable	A220, A602, J158	Slotting	.75 x D	1 x D	275	220	.0004	.0007	.0011	.0014	.0018	.0021	.0029
		Peripheral - Rough	1.25 x D	.3 x D	350	280	.0005	.0010	.0015	.0019	.0024	.0029	.0039
		Peripheral - HEM	2 x D	.15 x D	390	312	.0014	.0028	.0043	.0057	.0071	.0085	.0114
		Finish	1.5 x D	.015 x D	350	280	.0005	.0010	.0015	.0020	.0025	.0030	.0040
N - Non-Ferrous													
Brass/Bronze	Aluminum Bronze, Low Silicon Bronze	Slotting	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Peripheral - Rough	1.25 x D	.2 x D	250	200	.0003	.0006	.0009	.0012	.0015	.0021	.0024
		Peripheral - HEM	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	250	200	.0003	.0005	.0008	.0010	.0013	.0018	.0020
Composites	G-10, Fiberglass, Graphite, Graphite Epoxy, Plastics	Slotting	.5 x D	1 x D	325	260	.0005	.0010	.0015	.0020	.0025	.0030	.0040
		Peripheral - Rough	1.25 x D	.3 x D	400	320	.0007	.0014	.0020	.0027	.0034	.0041	.0055
		Peripheral - HEM	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	320	.0007	.0014	.0021	.0028	.0035	.0042	.0056
Copper		Slotting	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Peripheral - Rough	1.25 x D	.2 x D	250	200	.0003	.0006	.0009	.0012	.0015	.0021	.0024
		Peripheral - HEM	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	250	200	.0003	.0005	.0008	.0010	.0013	.0018	.0020
Magnesium		Slotting	.5 x D	1 x D	300	240	.0005	.0009	.0014	.0018	.0023	.0027	.0037
		Peripheral - Rough	1.25 x D	.3 x D	375	300	.0006	.0012	.0019	.0025	.0031	.0037	.0050
		Peripheral - HEM	3 x D	.05 x D	415	332	.0021	.0043	.0064	.0085	.0107	.0129	.0170
		Finish	2 x D	.015 x D	375	300	.0006	.0013	.0019	.0025	.0032	.0038	.0051
S - High Temp Alloys													
Cobalt Base	Stellite, HS-21, Haynes 25/188, X40, L605	Slotting	.25 x D	1 x D	70	60	.0002	.0004	.0006	.0008	.0010	.0014	.0016
		Peripheral - Rough	1 x D	.15 x D	80	65	.0003	.0005	.0008	.0010	.0013	.0018	.0020
		Peripheral - HEM	1.25 x D	.05 x D	90	75	.0010	.0021	.0031	.0041	.0051	.0072	.0082
		Finish	1.5 x D	.010 x D	85	70	.0002	.0004	.0006	.0008	.0010	.0014	.0016
Cobalt Base > 32 HRC	Reduce SFM by 40%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Iron Base	Incoloy 800-802, Multmet N-155, Timkin 16-25-6, Carpenter 22-53	Slotting	.25 x D	1 x D	60	50	.0002	.0004	.0006	.0008	.0010	.0014	.0016
		Peripheral - Rough	1 x D	.15 x D	65	55	.0003	.0005	.0008	.0010	.0013	.0018	.0020
		Peripheral - HEM	1.25 x D	.05 x D	75	60	.0010	.0021	.0031	.0041	.0051	.0072	.0082
		Finish	1.5 x D	.010 x D	70	55	.0002	.0004	.0006	.0008	.0010	.0014	.0016
Iron Base > 32 HRC	Reduce SFM by 40%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Nickel Base	Inconel 625/718, Inco 700, 713C, 718, Monel 400-401, 404, K401, Rene, Rene 41 & 95 Hastelloy, Waspoly, Udimet 500 & 700	Slotting	.25 x D	1 x D	70	60	.0002	.0004	.0006	.0008	.0011	.0015	.0017
		Peripheral - Rough	1 x D	.15 x D	80	65	.0003	.0006	.0009	.0012	.0014	.0020	.0023
		Peripheral - HEM	1.25 x D	.05 x D	90	75	.0012	.0023	.0035	.0046	.0058	.0081	.0092
		Finish	1.5 x D	.010 x D	85	70	.0003	.0005	.0008	.0010	.0013	.0018	.0020
Nickel Base >32 HRC	Reduce SFM by 40%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Titanium	Commercially Pure, 6Al-4V, ASTM 1/2/3, 6Al-25N-4Zr-2Mo-Si, Ti-8Al-1Mo, Ti-8Al-4Mo	Slotting	.5 x D	1 x D	200	160	.0003	.0007	.0010	.0013	.0016	.0020	.0026
		Peripheral - Rough	1 x D	.3 x D	250	200	.0004	.0009	.0013	.0018	.0022	.0027	.0036
		Peripheral - HEM	3 x D	.05 x D	275	220	.0016	.0032	.0047	.0063	.0079	.0095	.0126
		Finish	1.5 x D	.015 x D	250	200	.0005	.0009	.0014	.0018	.0023	.0027	.0036

D = tool diameter. Reduce feed rates by 20% when using long length tools. Starting parameters shown. Speeds and Feeds listed are estimated and will vary by application.