



## SPEED &amp; FEED RECOMMENDATIONS

## SERIES 135 3xD

SERIES 135 3xD FRACTIONAL	HARDNESS	SPEED sfm	FEED (inch/rev)									
	BRINELL		1/64	1/32	1/16	1/8	1/4	3/8	1/2	5/8	7/8	
■ CARBON STEEL 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 200	400	0.00050	0.0010	0.0020	0.0040	0.0080	0.0120	0.0160	0.0200	0.0280	
	> 200 ≤ 300	350	0.00045	0.0009	0.0018	0.0035	0.0070	0.0105	0.0140	0.0175	0.0245	
	> 300 ≤ 420	160	0.00035	0.0008	0.0015	0.0030	0.0060	0.0090	0.0120	0.0150	0.0210	
■ ALLOY STEEL 4140, 4150, 4320, 4340, 5120, 5150, 8630, 86L20, 50100, 52100	≤ 270	300	0.00035	0.0008	0.0015	0.0030	0.0060	0.0090	0.0120	0.0150	0.0210	
	> 270 ≤ 370	220	0.00030	0.0006	0.0013	0.0025	0.0050	0.0075	0.0100	0.0125	0.0175	
	> 370 ≤ 450	120	0.00020	0.0005	0.0009	0.0018	0.0035	0.0055	0.0070	0.0090	0.0125	
■ TOOL STEEL A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 250	220	0.00030	0.0006	0.0013	0.0025	0.0050	0.0075	0.0100	0.0125	0.0175	
	> 250 ≤ 330	150	0.00020	0.0005	0.0009	0.0018	0.0035	0.0055	0.0070	0.0090	0.0125	
	> 330 ≤ 450	70	0.00010	0.0003	0.0005	0.0010	0.0020	0.0030	0.0040	0.0050	0.0070	
■ CAST IRON Gray, Malleable, Ductile	≤ 200	400	0.00060	0.0013	0.0025	0.0050	0.0100	0.0150	0.0200	0.0250	0.0350	
	> 200 ≤ 330	250	0.00055	0.0011	0.0023	0.0045	0.0090	0.0135	0.0180	0.0225	0.0315	
■ STAINLESS free machining 303, 416, 420F, 430F, 440F	≤ 250	200	0.00030	0.0006	0.0013	0.0025	0.0050	0.0075	0.0100	0.0125	0.0175	
	> 250 ≤ 330	150	0.00025	0.0005	0.0010	0.0020	0.0040	0.0060	0.0080	0.0100	0.0140	
■ STAINLESS difficult 304, 316, 321, 15-5ph, 17-4PH, Nitronic 32	≤ 270	90	0.00020	0.0005	0.0009	0.0018	0.0035	0.0055	0.0070	0.0090	0.0125	
	> 270 ≤ 370	70	0.00020	0.0004	0.0008	0.0015	0.0030	0.0045	0.0060	0.0075	0.0105	
■ TITANIUM TiCODE-12, Ti-6Al4V, Ti-5Al-5V-5Mo-3Cr, Ti-7Al4Mo, Ti8Al1Mo1V	≤ 280	120	0.00020	0.0005	0.0009	0.0018	0.0035	0.0055	0.0070	0.0090	0.0125	
	> 280 ≤ 350	100	0.00020	0.0004	0.0008	0.0015	0.0030	0.0045	0.0060	0.0075	0.0105	
	> 350 ≤ 440	70	0.00015	0.0003	0.0007	0.0013	0.0025	0.0040	0.0050	0.0065	0.0090	
■ HIGH TEMPERATURE ALLOY A-286, Hastelloy, Haynes, Incoloy, Inconel, Rene, Waspalloy	≤ 220	60	0.00010	0.0003	0.0005	0.0010	0.0020	0.0030	0.0040	0.0050	0.0070	
	> 220 ≤ 330	40	0.00010	0.0002	0.0004	0.0008	0.0015	0.0025	0.0030	0.0040	0.0055	
	> 330 ≤ 420	30	0.00005	0.0001	0.0003	0.0005	0.0010	0.0015	0.0020	0.0025	0.0035	
■ ALUMINUM 2017, 2024, 356, 6061, 7075	≤ 80	700	0.00070	0.0014	0.0028	0.0055	0.0110	0.0165	0.0220	0.0275	0.0385	
	> 80	600	0.00060	0.0013	0.0025	0.0050	0.0100	0.0150	0.0200	0.0250	0.0350	
■ COPPER ALLOY Alum Bronze, C110, Muntz Brass	≤ 140	500	0.00025	0.0005	0.0010	0.0020	0.0040	0.0060	0.0080	0.0100	0.0140	
	> 140	400	0.00025	0.0005	0.0010	0.0020	0.0040	0.0060	0.0080	0.0100	0.0140	
rpm = sfm × 3.82 / D <sub>1</sub>						ipm = (inch/rev) × rpm						