

# Recommended Cutting Speeds/Feeds

## Recommended Cutting Speeds for Dapra Ball Nose Cutters

MATERIAL GROUP		EXAMPLE	F1/T1 (uncoated)	FPO	FP-GLH	FP-HM/TS	PCD	Geometry	FPT
PLAIN STEELS	< 3%C	1008, 1018, 12L14	300-600	700-1100	800-1200	800-1200	N/R	HBN, RDBN, N	.002-.007
	3%-6%C	1040, 1045, 1055							
	5%-1.5%C	1060, 1070, 1095							
ALLOY STEELS	Mo	4012, 4320, 4340							
	Cr	52100, 5120							
	NiCrMo	8620, 8622, 8640							
TOOL & DIE STEELS		A2, D2, P20, W2, H13, S7							
HARDENED STEELS			N/R	N/R	250-600	250-600	N/R	N, RDBN	.002-.005
STAINLESS STEELS	Ferritic/Martensitic	403, 416, 430, 430F, 434, 446, S44400	150-300	300-750	400-900	500-900	N/R	HBN, RDBN, N	.002-.006
	Austenitic	304L, 303, 304, 316L							
	Precipitation Hardening (PH)	15-5PH, 17-4PH, custom, 455, PH13-8 Mo, AM355							
CAST IRON	Gray	A48 Class xx B, A436 Type 2	350-600	400-750	600-1000	600-1000 (HM)	N/R	HBN, RDBN, N	.003-.008
	Malleable	A47, A220, SAE J148							
	Ductile	60-40-18, 100-70-03, SAE J434							
ALUMINUM ALLOYS		2024-T4, 6061-T6, 7075-T6	1000+	1000+	1000+	1000+	2000+	HBN, CB, PCD	.005-.010
COPPER ALLOYS	CuNi: refer to High-Temp. Alloys below	J463, B121, Ampco 21, Wearite 4-13	300-600	400-700	500-800	500-800	N/R	HBN, CB	
HIGH-TEMP. ALLOYS		Inconel 617, Monel K500, Waspaloy, CuNi 70-30	50-125	50-150	50-150	50-150 (HM)	N/R	HBN, RDBN, CB	.002-.004
TITANIUM ALLOYS		Ti99.9, Alpha Alloy, Ti-6Al-4V	100-200	100-250	100-250	100-250 (HM)	N/R		.002-.005
CARBON GRAPHITE			700-1000	800-1200	1200+	1200+	1200+ (PCD, FPD, FP-DL)	HBN, CB, PCD	.004-.010

PCD – diamond tipped | FPD – diamond coated | FP-DL – diamond-like coating

\*\* Best choice grades shown in **bold text**.

### SPEED

Lower Speed Ranges for: Heavier cuts, harder materials, larger diameter tools

Medium Speed Ranges for: Semi-finishing

Higher Speed Ranges for: Lighter cuts, softer materials, smaller diameter tools

### FEED

Lower Feed Ranges for: Heavier cuts, harder materials, smaller diameter tools

Higher Feed Ranges for: Lighter cuts, softer materials, larger diameter tools

The parameters provided are suggested operating parameters. Actual speeds and feeds will depend on many variables, such as rigidity, workpiece hardness, tool extension, machine accuracy, Depth of Cut, etc. Start at the middle of the SFM range and the low end of the FPT range. Next, increase FPT to optimize productivity and tool life. Higher SFM will provide higher output but will reduce tool life. Try different combinations to find the parameters that best suit your needs.