



OPERATING GUIDELINES

Materials				V _c Cutting Speed SFM	Feed (inch/rev)	
ISO	Mat'l Group #VDI 3323	Type	Examples		G Chipbreaker	B Chipbreaker
P	1-5	Low carbon steels (C <0.3)	1018, A36, 1045, A572, 1070	262 - 394	.0035 - .008	.001 - .004
	6-9	Carbon steels (C>0.3)	4140, 4340, P20, 8620, 300M			
	10-11	Low alloy steels	H13, A2, D2, M2, T1			
	ISO	Alloy steels				
M	12-13	Stainless steels (Austenitic)	410, 416, 440	197 - 328	.0035 - .006	.001 - .004
	14	Stainless steels (Matensitic and ferritic)	303, 304, 316, 15-5, 17-4			
		Stainless steels (Precipitation hardening)				
K	15-20	Ductile cast iron	CLS. 20, 30, 45	197 - 459	.0035 - .012	.001 - .0055
	17-18	Gray cast iron	60-40-18, 100-70-03			
N	21-24	Aluminum Alloy	7075, 6061	328 - 656	.0035 - .010	.001 - .008
S	31-35	High-Temp Alloys	Inconel, Hastelloy, Nimonic, Monel	66 - 164	.002 - .007	.001 - .004
	36-37	Titanium Alloys	Ti-Al-4V, 6Al-4V, 5Al-5Mo-5V-3Cr	98 - 197		
H	38-41	Hardened Steel >40	A2, O1, D2	131 - 328	.002 - .005	.001 - .004

Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause for reductions in feeds and speed or dramatic increases.