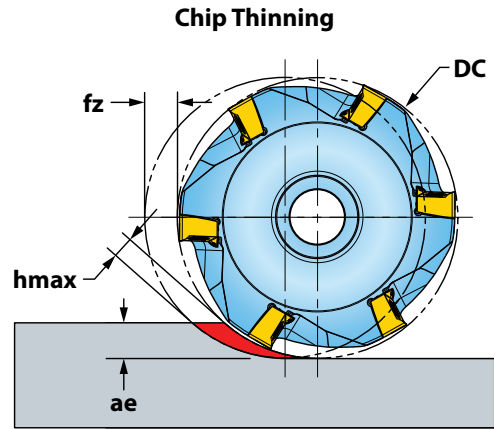


OPERATING GUIDELINES - 90°



* Chip Thinning Calculator is recommended to ensure hmax is within fz range.

Materials				Vc Cutting Speed SFM	fz* Feed/Tooth (inch)	Harder <-----> Tougher						Coolant
ISO	Mat'l Group #VDI 3323	Type	Examples			Carbide						
						IN2504	IN6515	IN2510	IN2505	IN2530	IN7036	
P	1 thru 5	Non-alloy Steel	1018, A36, 1045, A572, 1070	400-1000	.003-.007							No
	6 thru 9	Low-alloy Steel	4140, 4340, P20, 8620, 300M	350-500					2	1		
	10, 11	High-alloy Steel	H13, A2, D2, M2, T1	300-700								
M	12 thru 13	Stainless Steel (Ferritic & Martensitic)	300 Series, 304, 316	350-600	.002-.005				3	2	1	Yes May not be required at high speeds
	14	Stainless Steel (Martensitic)	400 Series, 15-5 PH	300-550								
K	15 thru 16	Gray Cast Iron	CLS. 20, 30, 45	300-1000	.003-.007	3	2	1				No
	17 thru 20	Nodular Cast Iron	60-40-18, 100-70-03	300-600								
S	31 thru 35	High-Temp Alloys	Inconel, Hastelloy, Nimonic, Monel	75-120	.002-.005				3	2	1	Yes
	36 thru 37	Titanium Alloys	6Al-4V, 5Al-5Mo-5V-3Cr	100-150					2	3	1	
H	38 thru 39	Hardened Steel >48	A2, O1, D2	165-360	.002-.005	1			2			Yes

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. Additionally, DOC and WOC may need to be revised to optimize the tools performance.