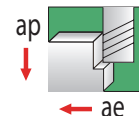


GARR TOOL Milling Guide for X3/G3

ISO Material		HRC	SFM (Vc)								
				1/32"	1/16"	3/32"	1/8"	5/32"	3/16"	1/4"	
S	COBALT BASE ALLOYS										
	Powdered Metal, Stellite, Hs-21, Haynes 25/188, X-40, L-605	< 40 > 40	120 - 240 100 - 195	.0001" - .0003" .0001" - .0003"	.0002" - .0007" .0001" - .0005"	.0002" - .0008" .0001" - .0006"	.0004" - .0010" .0003" - .0009"	.0006" - .0011" .0004" - .0010"	.0007" - .0015" .0005" - .0013"	.0008" - .0020" .0006" - .0018"	
	NICKEL BASE ALLOYS										
	Invar, Kovar, Inconel-625/718, Waspaloy, Rene, Hastelloy, A286	< 40 > 40	120 - 240 100 - 195	.0001" - .0003" .0001" - .0003"	.0002" - .0007" .0001" - .0005"	.0002"" - .0008" .0001" - .0006"	.0004" - .0010" .0003" - .0009"	.0006" - .0011" .0004" - .0010"	.0007" - .0015" .0005" - .0013"	.0008" - .0020" .0006" - .0018"	
	IRON BASE ALLOYS										
	Incoloy 800-802, Multimet N-155, Timkin 16-25-6, Carpenter 22-b3	< 40 > 40	120 - 240 100 - 195	.0001" - .0003" .0001" - .0003"	.0002" - .0007" .0001" - .0005"	.0002" - .0008" .0001" - .0006"	.0004" - .0010" .0003" - .0009"	.0006" - .0011" .0004" - .0010"	.0007" - .0015" .0005" - .0013"	.0008" - .0020" .0006" - .0018"	
	MONEL										
	Monel - 65% Nickel		160 - 290	.0001" - .0003"	.0002" - .0007"	.0002" - .0008"	.0005" - .0010"	.0006" - .0011"	.0007" - .0015"	.0008" - .0020"	
TITANIUM ALLOYS											
Commercially Pure, 6Al-4V, Astm 1/2/3, 6Al-25N-4Zr-2Mo-Si		260 - 490	.0001" - .0003"	.0003" - .0007"	.0003" - .0008"	.0005" - .0010"	.0006" - .0011"	.0007" - .0015"	.0009" - .0019"		
5553 / Beta Titanium		195 - 365	.0001" - .0003"	.0002" - .0007"	.0003" - .0007"	.0005" - .0010"	.0006" - .0011"	.0006" - .0014"	.0009" - .0017"		
M	STAINLESS STEELS										
	13/8, 15/5, 17-4, pH Types	< 40 > 40	290 - 490 225 - 360	.0001" - .0003" .0001" - .0003"	.0002" - .0007" .0001" - .0005"	.0003" - .0008" .0002" - .0006"	.0004" - .0010" .0003" - .0009"	.0006" - .0011" .0004" - .0010"	.0070" - .0015" .0005" - .0013"	.0007" - .0018" .0006" - .0015"	
	200 Series, 300 Series	< 40 > 40	355 - 555 290 - 455	.0001" - .0003" .0001" - .0003"	.0002" - .0007" .0001" - .0005"	.0003" - .0008" .0002" - .0006"	.0004" - .0010" .0003" - .0009"	.0006" - .0011" .0004" - .0010"	.0007" - .0015" .0005" - .0014"	.0007" - .0018" .0006" - .0015"	
	304L, 316L, Nitronic 50	< 40 > 40	325 - 520 225 - 360	.0001" - .0003" .0001" - .0003"	.0002" - .0007" .0001" - .0005"	.0003" - .0008" .0002" - .0006"	.0004" - .0010" .0003" - .0009"	.0006" - .0011" .0004" - .0010"	.0007" - .0015" .0005" - .0014"	.0007" - .0018" .0006" - .0014"	
	400 Series	< 40 > 40	290 - 555 225 - 425	.0001" - .0003" .0001" - .0003"	.0002" - .0007" .0001" - .0005"	.0003" - .0008" .0002" - .0006"	.0004" - .0010" .0003" - .0009"	.0006" - .0011" .0004" - .0010"	.0007" - .0015" .0005" - .0014"	.0007" - .0018" .0006" - .0014"	
P	HIGH STRENGTH TOOL STEELS										
	A2, D2, P20, H13, S7, O1	< 40 > 40	290 - 520 195 - 425	.0001" - .0003" .0001" - .0003"	.0002" - .0007" .0001" - .0005"	.0003" - .0008" .0002" - .0006"	.0004" - .0010" .0003" - .0009"	.0006" - .0011" .0004" - .0010"	.0007" - .0014" .0005" - .0011"	.0008" - .0018" .0007" - .0014"	
	MEDIUM ALLOY TOOL STEELS										
	4140, 4340, 52100, 6150, 8620	< 40 > 40	455 - 650 325 - 490	.0001" - .0003" .0001" - .0003"	.0002" - .0007" .0001" - .0005"	.0003" - .0008" .0002" - .0006"	.0004" - .0011" .0003" - .0010"	.0006" - .0011" .0004" - .0010"	.0007" - .0015" .0005" - .0014"	.0008" - .0019" .0007" - .0014"	
	CARBON STEELS										
1000's - 1018, 1020, 12L14	< 40	490 - 780	.0001" - .0003"	.0002" - .0007"	.0003" - .0008"	.0004" - .0012"	.0006" - .0011"	.0005" - .0016"	.0001" - .0015"		
K	CAST MATERIAL										
	Steel (Malleable)		455 - 685	.0001" - .0003"	.0002" - .007"	.0003" - .0008"	.0005" - .0010"	.0006" - .0011"	.0007" - .0018"	.0009" - .0023"	
	Ductile Iron		455 - 685	.0001" - .0003"	.0002" - .0007"	.0003" - .0008"	.0005" - .0010"	.0006" - .0011"	.0007" - .0018"	.0009" - .0023"	
	Gray Iron		585 - 770	.0001" - .0003"	.0002" - .0007"	.0003" - .0008"	.0005" - .0010"	.0006" - .0011"	.0007" - .0018"	.0010" - .0022"	

	Profile/Trochoidal Milling	Slotting
Axial (ap)	MAX	0.5 to 1xD
Radial (ae)	Up to 15% Dia.	1xD



NOTE - DATA DOES NOT REFLECT CHIP THINNING.

NOTE - ABOVE ARE STARTING PARAMETERS ONLY. HIGHER RESULTS MAY BE ACHIEVED WITH OPTIMUM CONDITIONS.