

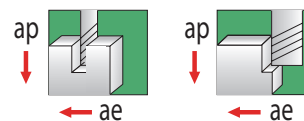
GARR TOOL High Performance Milling Guide for V4

NOTE - DATA DOES NOT REFLECT CHIP THINNING.

SPINDLE INTERFACE MUST BE SCRUTINIZED WHEN USING 16mm DIAMETER AND LARGER END MILLS

ISO Material		HRC	M/Min. (Vc)	CHIPLOAD PER TOOTH (Fz)							
				6.0mm	8.0mm	10.0mm	12.0mm	16.0mm	20.0mm	25.0mm	
S	COBALT BASE ALLOYS										
	Haynes 25/188, Stellite 21, Cobalt Chrome	< 40 > 40	27 - 57 25 - 45	.020 -.038 .015 -.033	.023 -.046 .018 -.041	.028 -.056 .023 -.051	.041 -.076 .030 -.066	.046 -.091 .036 -.081	.056 -.112 .046 -.102	.081 -.152 .061 -.132	
	NICKEL BASE ALLOYS										
	Inconel-625/718, Waspalloy, Invar, Rene, Hastelloy, Monel	< 40 > 40	27 - 57 25 - 45	.020 -.038 .015 -.033	.023 -.046 .018 -.041	.028 -.056 .023 -.051	.041 -.076 .030 -.066	.046 -.091 .036 -.081	.056 -.112 .046 -.102	.081 -.152 .061 -.132	
	IRON BASE ALLOYS										
	A286, Discaloy, Haynes 556, Carpenter 22, Greek Ascology	< 40 > 40	27 - 57 25 - 45	.020 -.038 .015 -.033	.023 -.046 .018 -.041	.028 -.056 .023 -.051	.041 -.076 .030 -.066	.046 -.091 .036 -.081	.056 -.112 .046 -.102	.081 -.152 .061 -.132	
	TITANIUM ALLOYS										
	Commercially Pure, 6Al-4V, Astm 1/2/3, 6Al-25N-4Zr-2Mo-Si		60 - 115	.023 -.043	.025 -.051	.030 -.061	.046 -.086	.051 -.102	.061 -.122	.091 -.173	
5553 / Beta Titanium		45 - 85	.023 -.038	.025 -.046	.030 -.056	.046 -.076	.051 -.091	.061 -.112	.081 -.152		
M	STAINLESS STEELS										
	13/8, 15/5, 17-4, pH Types	< 40 > 40	70 - 115 55 - 85	.020 -.038 .015 -.033	.023 -.046 .018 -.041	.028 -.056 .023 -.051	.041 -.076 .030 -.066	.046 -.091 .036 -.081	.056 -.112 .046 -.102	.081 -.152 .061 -.132	
	300 Series, 304L, Nitronic 50, Duplex, Super-Austenitic	< 40 > 40	75 - 120 55 - 85	.020 -.038 .015 -.033	.023 -.046 .018 -.041	.028 -.056 .023 -.051	.041 -.076 .030 -.066	.046 -.091 .036 -.081	.056 -.112 .046 -.102	.081 -.152 .061 -.132	
	400 Series - 403, 405, 420, 455	< 40 > 40	70 - 130 55 - 100	.020 -.041 .015 -.036	.023 -.048 .018 -.043	.028 -.058 .023 -.053	.041 -.081 .030 -.071	.046 -.097 .036 -.086	.056 -.117 .046 -.107	.081 -.163 .061 -.142	
	HIGH STRENGTH TOOL STEELS										
A2, D2, P20, H13, S7, O1	< 40 > 40	70 - 120 45 - 100	.020 -.041 .015 -.033	.028 -.048 .025 -.041	.033 -.058 .030 -.051	.041 -.081 .030 -.066	.056 -.097 .051 -.081	.066 -.142 .061 -.102	.102 -.163 .091 -.132		
P	MEDIUM ALLOY TOOL STEELS										
	4140, 4340, 52100, 6150, 8620	< 40 > 40	110 - 150 75 - 115	.020 -.043 .015 -.036	.028 -.051 .025 -.043	.033 -.061 .030 -.051	.041 -.086 .030 -.071	.056 -.102 .051 -.086	.066 -.122 .061 -.102	.102 -.173 .091 -.142	
	CARBON STEELS										
	1000's - 1018, 1020, 12L14	< 40	115 - 180	.025 -.046	.028 -.053	.033 -.064	.051 -.091	.056 -.107	.066 -.127	.102 -.183	
K	CAST MATERIAL										
	Ductile Iron		110 - 160	.025 -.046	.033 -.056	.038 -.066	.051 -.091	.066 -.112	.076 -.132	.102 -.183	
	Gray Iron		135 - 180	.028 -.051	.036 -.058	.041 -.069	.056 -.102	.071 -.117	.081 -.137	.112 -.203	

	Slotting Pocket Milling	Profiling Side Milling
Axial (ap)	up to 1.5xD	up to 2xD
Radial (ae)	1xD	5% - 15% of Dia.



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