

GARR TOOL High Performance Milling Guide for V5, V5C

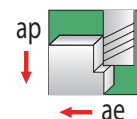
(HIGH EFFICIENCY MILLING)

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	30 - 70 27 - 55	.023 -.041 .018 -.036	.025 -.048 .020 -.043	.030 -.058 .025 -.053	.046 -.081 .036 -.071	.051 -.097 .041 -.086	.061 -.117 .051 -.107	.091 -.163 .071 -.142	
	NICKEL BASE ALLOYS										
	Inconel-625/718, Waspaloy, Invar, Rene, Hastelloy, Monel	< 40 > 40	30 - 70 27 - 55	.023 -.041 .018 -.036	.025 -.048 .020 -.043	.030 -.058 .025 -.053	.046 -.081 .036 -.071	.051 -.097 .041 -.086	.061 -.117 .051 -.107	.091 -.163 .071 -.142	
	IRON BASE ALLOYS										
	A286, Discaloy, Haynes 556, Carpenter 22, Greek Ascology	< 40 > 40	30 - 70 27 - 55	.023 -.041 .018 -.036	.025 -.048 .020 -.043	.030 -.058 .025 -.053	.046 -.081 .036 -.071	.051 -.097 .041 -.086	.061 -.117 .051 -.107	.091 -.163 .071 -.142	
	TITANIUM ALLOYS										
	Commercially Pure, 6Al-4V, Astm 1/2/3, 6Al-25N-4Zr-2Mo-Si		75 - 135	.025 -.046	.028 -.053	.033 -.064	.051 -.091	.056 -.107	.066 -.127	.102 -.183	
5553 / Beta Titanium		55 - 105	.025 -.041	.028 -.048	.033 -.058	.051 -.081	.056 -.097	.066 -.117	.102 -.163		
M	STAINLESS STEELS										
	13/8, 15/5, 17-4, pH Types	< 40 > 40	90 - 135 65 - 100	.023 -.041 .018 -.036	.025 -.048 .020 -.043	.030 -.058 .025 -.053	.046 -.081 .036 -.071	.051 -.097 .041 -.086	.061 -.117 .051 -.107	.091 -.163 .071 -.142	
	300 Series, 304L, Nitronic 50, Duplex, Super-Austenitic	< 40 > 40	90 - 145 65 - 100	.023 -.041 .018 -.036	.025 -.048 .020 -.043	.030 -.058 .025 -.053	.046 -.081 .036 -.071	.051 -.097 .041 -.086	.061 -.117 .051 -.107	.091 -.163 .071 -.142	
	400 Series - 403, 405, 420, 455	< 40 > 40	85 - 155 65 - 120	.023 -.043 .018 -.038	.025 -.051 .020 -.046	.030 -.061 .025 -.056	.046 -.086 .036 -.076	.051 -.102 .041 -.091	.061 -.122 .051 -.112	.091 -.173 .071 -.152	
	HIGH STRENGTH TOOL STEELS										
	A2, D2, P20, H13, S7, O1	< 40 > 40	85 - 145 55 - 120	.023 -.043 .018 -.036	.025 -.051 .020 -.043	.030 -.061 .025 -.053	.046 -.086 .036 -.071	.051 -.102 .041 -.086	.061 -.122 .051 -.107	.091 -.173 .071 -.142	
P	MEDIUM ALLOY TOOL STEELS										
	4140, 4340, 52100, 6150, 8620	< 40 > 40	130 - 180 90 - 135	.023 -.046 .018 -.038	.025 -.053 .020 -.046	.030 -.064 .025 -.056	.046 -.091 .036 -.076	.051 -.107 .041 -.091	.061 -.127 .051 -.112	.091 -.183 .071 -.152	
	CARBON STEELS										
	1000's - 1018, 1020, 12L14	< 40	135 - 220	.028 -.048	.030 -.056	.036 -.066	.056 -.097	.061 -.112	.071 -.132	.112 -.193	
K	CAST MATERIAL										
	Ductile Iron		130 - 190	.028 -.048	.030 -.056	.036 -.066	.056 -.097	.061 -.112	.071 -.132	.112 -.193	
	Gray Iron		170 - 215	.030 -.053	.033 -.061	.038 -.071	.061 -.107	.066 -.122	.076 -.142	.122 -.213	

	Profile/Trochoidal Milling
Axial (ap)	up to 2xD
Radial (ae)	5% - 15% of Dia.



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