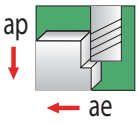
GARR TOOL X5, G5 High Performance Milling Guide

	ISO Material	HRC	M/Min. (Vc)	CHIPLOAD PER TOOTH (Fz) 4.0mm	5.0mm	6.0mm	8.0mm	10.0mm	12.0mm	16.0mm	20.0mm
S	**COBALT BASE ALLOYS**										
	Powdered Metal, Stellite, Hs-21, Haynes 25/188, X-40, L-605	< 40 > 40	37 - 75 30 - 60	.010 - .025 .008 - .020	.013 - .038 .010 - .030	.020 - .051 .015 - .046	.023 - .056 .020 - .051	.028 - .061 .023 - .056	.041 - .086 .030 - .074	.046 - .104 .036 - .091	.056 - .127 .046 - .117
	NICKEL BASE ALLOYS										
	Invar, Kovar, Inconel-625/718, Waspaloy, Rene, Hastelloy, A286	< 40 > 40	37 - 75 30 - 60	.010 - .025 .008 - .020	.013 - .038 .010 - .030	.020 - .051 .015 - .046	.023 - .056 .020 - .051	.028 - .061 .023 - .056	.041 - .086 .030 - .074	.046 - .104 .036 - .091	.056 - .127 .046 - .117
	IRON BASE ALLOYS										
	Incoloy 800-802, Multimet N-155, Timkin 16-25-6, Carpenter 22-b3	< 40 > 40	37 - 75 30 - 60	.010 - .025 .008 - .020	.013 - .038 .010 - .030	.020 - .051 .015 - .046	.023 - .056 .020 - .051	.028 - .061 .023 - .056	.041 - .086 .030 - .074	.046 - .104 .036 - .091	.056 - .127 .046 - .117
	MONEL										
	Monel - 65% Nickel		50 - 90	.010 - .025	.013 - .038	.020 - .051	.023 - .056	.028 - .061	.041 - .086	.046 - .104	.056 - .127
	TITANIUM ALLOYS										
	Commercially Pure, 6Al-4V, Astm 1/2/3, 6Al-25N-4Zr-2Mo-Si		80 - 150	.010 - .030	.013 - .038	.023 - .048	.025 - .051	.030 - .066	.046 - .097	.051 - .117	.061 - .137
	5553 / Beta Titanium		60 - 110	.008 - .025	.010 - .030	.023 - .043	.025 - .048	.030 - .061	.046 - .086	.051 - .104	.061 - .127
M	**STAINLESS STEELS**										
	13/8, 15/5, 17-4, pH Types	< 40 > 40	90 - 150 70 - 110	.010 - .025 .008 - .020	.013 - .038 .010 - .028	.018 - .046 .015 - .038	.020 - .051 .018 - .048	.028 - .061 .023 - .056	.041 - .086 .030 - .074	.046 - .104 .036 - .094	.056 - .127 .046 - .117
	200 Series, 300 Series	< 40 > 40	110 - 170 90 - 140	.010 - .025 .008 - .020	.013 - .038 .010 - .025	.018 - .046 .015 - .038	.020 - .051 .018 - .048	.028 - .061 .023 - .056	.041 - .099 .030 - .074	.046 - .117 .036 - .094	.056 - .142 .046 - .117
	304L, 316L, Nitronic 50	< 40 > 40	100 - 160 70 - 110	.010 - .025 .008 - .020	.013 - .038 .010 - .023	.018 - .046 .015 - .036	.020 - .051 .018 - .048	.028 - .061 .023 - .056	.041 - .086 .030 - .074	.046 - .104 .036 - .094	.056 - .127 .046 - .117
	400 Series	< 40 > 40	90 - 170 70 - 130	.010 - .028 .008 - .023	.013 - .038 .010 - .023	.018 - .046 .015 - .036	.020 - .051 .018 - .048	.028 - .066 .023 - .058	.041 - .091 .030 - .081	.046 - .112 .036 - .099	.056 - .137 .046 - .122
P	**HIGH STRENGTH TOOL STEELS**										
	A2, D2, P20, H13, S7, O1	< 40 > 40	90 - 160 60 - 130	.013 - .025 .008 - .020	.015 - .036 .013 - .025	.020 - .046 .018 - .036	.023 - .056 .020 - .046	.033 - .066 .030 - .056	.041 - .091 .030 - .074	.056 - .112 .051 - .091	.066 - .137 .061 - .117
	MEDIUM ALLOY TOOL STEELS										
	4140, 4340, 52100, 6150, 8620	< 40 > 40	140 - 200 100 - 150	.013 - .030 .008 - .020	.015 - .036 .013 - .025	.020 - .048 .018 - .036	.023 - .058 .020 - .046	.033 - .069 .030 - .056	.041 - .097 .030 - .079	.056 - .117 .051 - .097	.066 - .142 .061 - .117
	CARBON STEELS										
	1000's - 1018, 1020, 12L14	< 40	150 - 240	.013 - .030	.015 - .036	.025 - .038	.023 - .046	.033 - .071	.051 - .104	.056 - .122	.066 - .147
K	**CAST MATERIAL**										
	Steel (Malleable)		140 - 210	.013 - .038	.015 - .048	.023 - .058	.025 - .064	.038 - .074	.051 - .112	.066 - .130	.076 - .152
	Ductile Iron		140 - 210	.013 - .038	.015 - .048	.023 - .058	.025 - .064	.038 - .074	.051 - .112	.066 - .130	.076 - .152
	Gray Iron		180 - 235	.018 - .038	.018 - .048	.025 - .056	.028 - .066	.041 - .076	.056 - .117	.066 - .135	.081 - .157

	Profile/Trochoidal Milling
Axial (ap)	up to 2xD
Radial (ae)	5% - 25% of Dia.



NOTE - DATA DOES NOT REFLECT CHIP THINNING.

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

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