

GARR TOOL General Purpose Milling Guide

ISO Material	HRC	SFM (Vc)	CHIPLOAD PER TOOTH (Fz)									
			1/16"	1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"
COBALT BASE ALLOYS												
Haynes 25/188, Stellite 21, Cobalt Chrome	< 40 > 40	60 - 90 50 - 80	.0004"-.0008" .0003"-.0006"	.0004"-.0008" .0003"-.0006"	.0004"-.0008" .0003"-.0006"	.0005"-.0010" .0003"-.0008"	.0008"-.0015" .0005"-.0010"	.0010"-.0018" .0008"-.0015"	.0015"-.0030" .0010"-.0015"	.0020"-.0030" .0015"-.0025"	.0025"-.0035" .0015"-.0020"	.0025"-.0035" .0015"-.0020"
NICKEL BASE ALLOYS												
Inconel-625/718, Waspaloy, Invar, Rene, Hastelloy, Monel	< 40 > 40	55 - 90 45 - 80	.0004"-.0008" .0003"-.0006"	.0004"-.0008" .0003"-.0006"	.0004"-.0008" .0003"-.0006"	.0005"-.0010" .0003"-.0008"	.0008"-.0015" .0005"-.0010"	.0010"-.0018" .0008"-.0015"	.0015"-.0030" .0010"-.0015"	.0020"-.0030" .0015"-.0025"	.0025"-.0035" .0015"-.0020"	.0025"-.0035" .0015"-.0020"
IRON BASE ALLOYS												
A286, Discaloy, Haynes 556, Carpenter 22, Greek Ascology	< 40 > 40	55 - 90 50 - 80	.0004"-.0008" .0003"-.0006"	.0004"-.0008" .0003"-.0006"	.0004"-.0008" .0003"-.0006"	.0005"-.0010" .0003"-.0008"	.0008"-.0015" .0005"-.0010"	.0010"-.0018" .0008"-.0015"	.0015"-.0030" .0010"-.0015"	.0020"-.0030" .0015"-.0025"	.0025"-.0035" .0015"-.0020"	.0025"-.0035" .0015"-.0020"
TITANIUM ALLOYS												
Commercially Pure, 6Al-4V, Astm 1/2/3, 6Al-25N-4Zr-2Mo-Si		100 - 150	.0003"-.0008"	.0003"-.0008"	.0005"-.0012"	.0005"-.0012"	.0008"-.0015"	.0010"-.0015"	.0013"-.0020"	.0018"-.0025"	.0020"-.0030"	.0025"-.0035"
5553 / Beta Titanium		90 - 120	.0003"-.0008"	.0003"-.0008"	.0004"-.0010"	.0004"-.0010"	.0005"-.0012"	.0008"-.0014"	.0010"-.0016"	.0010"-.0020"	.0015"-.0025"	.0015"-.0025"
STAINLESS STEELS												
13/8, 15/5, 17-4, pH Types	< 40 > 40	100 - 150 80 - 100	.0002"-.0005" .0002"-.0004"	.0003"-.0006" .0002"-.0004"	.0003"-.0007" .0002"-.0006"	.0006"-.0009" .0003"-.0007"	.0008"-.0012" .0004"-.0008"	.0013"-.0018" .0007"-.0012"	.0010"-.0020" .0008"-.0015"	.0012"-.0025" .0010"-.0016"	.0012"-.0020" .0013"-.0017"	.0020"-.0028" .0015"-.0020"
300 Series, 304L, Nitronic 50, Duplex, Super-Austenitic	< 40 > 40	100 - 150 80 - 100	.0003"-.0006" .0002"-.0004"	.0003"-.0007" .0002"-.0005"	.0005"-.0010" .0004"-.0007"	.0008"-.0015" .0005"-.0010"	.0009"-.0013" .0005"-.0010"	.0010"-.0018" .0007"-.0010"	.0015"-.0020" .0009"-.0015"	.0018"-.0022" .0012"-.0018"	.0018"-.0035" .0015"-.0025"	.0023"-.0036" .0020"-.0030"
400 Series - 403, 405, 420, 455	< 40 > 40	150 - 200 100 - 150	.0005"-.0008" .0003"-.0007"	.0007"-.0010" .0004"-.0008"	.0009"-.0015" .0006"-.0010"	.0009"-.0014" .0007"-.0011"	.0011"-.0015" .0008"-.0012"	.0013"-.0018" .0009"-.0015"	.0015"-.0025" .0012"-.0020"	.0020"-.0035" .0018"-.0030"	.0022"-.0040" .0020"-.0035"	.0030"-.0046" .0024"-.0042"
HIGH STRENGTH TOOL STEELS												
A2, D2, P20, H13, S7, O1	< 40 > 40	150 - 200 100 - 150	.0003"-.0008" .0003"-.0005"	.0003"-.0008" .0003"-.0005"	.0005"-.0010" .0003"-.0008"	.0010"-.0015" .0005"-.0010"	.0012"-.0020" .0005"-.0010"	.0012"-.0020" .0005"-.0010"	.0014"-.0024" .0010"-.0015"	.0018"-.0026" .0012"-.0018"	.0020"-.0028" .0014"-.0020"	.0022"-.0030" .0015"-.0022"
MEDIUM ALLOY TOOL STEELS												
4140, 4340, 52100, 6150, 8620	< 40 > 40	150 - 200 100 - 150	.0003"-.0008" .0003"-.0005"	.0003"-.0008" .0003"-.0005"	.0005"-.0010" .0003"-.0008"	.0010"-.0015" .0005"-.0010"	.0012"-.0020" .0005"-.0010"	.0012"-.0020" .0005"-.0010"	.0014"-.0024" .0010"-.0015"	.0018"-.0026" .0012"-.0018"	.0020"-.0028" .0014"-.0020"	.0022"-.0030" .0015"-.0022"
CARBON STEELS												
1000's - 1018, 1020, 12L14	< 40	150 - 200	.0003"-.0008"	.0003"-.0008"	.0005"-.0010"	.0010"-.0015"	.0012"-.0020"	.0012"-.0020"	.0014"-.0024"	.0018"-.0026"	.0020"-.0028"	.0022"-.0030"
CAST MATERIAL												
Ductile Iron		175 - 225	.0005"-.0008"	.0008"-.0012"	.0010"-.0015"	.0015"-.0025"	.0015"-.0025"	.0020"-.0030"	.0025"-.0035"	.0035"-.0045"	.0035"-.0045"	.0045"-.0055"
Gray Iron		175 - 225	.0005"-.0008"	.0008"-.0012"	.0010"-.0015"	.0015"-.0025"	.0015"-.0025"	.0020"-.0030"	.0025"-.0035"	.0035"-.0045"	.0035"-.0045"	.0045"-.0055"
NON-FERROUS												
Aluminum		300 - 500	.0003"-.0005"	.0006"-.0010"	.0008"-.0014"	.0012"-.0020"	.0014"-.0028"	.0020"-.0030"	.0035"-.0048"	.0050"-.0060"	.0058"-.0070"	.0068"-.0090"
Magnesium		300 - 500	.0003"-.0005"	.0006"-.0010"	.0008"-.0014"	.0012"-.0020"	.0014"-.0028"	.0020"-.0030"	.0035"-.0048"	.0050"-.0060"	.0058"-.0070"	.0068"-.0090"
Copper		250 - 450	.0003"-.0005"	.0006"-.0010"	.0008"-.0014"	.0012"-.0020"	.0014"-.0028"	.0020"-.0030"	.0035"-.0048"	.0050"-.0060"	.0058"-.0070"	.0068"-.0090"
Brass, Bronze		200 - 400	.0003"-.0005"	.0006"-.0010"	.0008"-.0014"	.0012"-.0020"	.0014"-.0028"	.0020"-.0030"	.0035"-.0048"	.0050"-.0060"	.0058"-.0070"	.0068"-.0090"
COMPOSITE (non-ISO)												
Fiberglass, Plastics, G10		200 - 400	.0003"-.0005"	.0006"-.0010"	.0008"-.0014"	.0012"-.0020"	.0014"-.0028"	.0020"-.0030"	.0035"-.0048"	.0050"-.0060"	.0058"-.0070"	.0068"-.0090"
Graphite		(See Graphite Chart - page 313)										

When plunging into a solid, drop feed by approximately 50%. 20% of diameter for basic engagement parameters.

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