

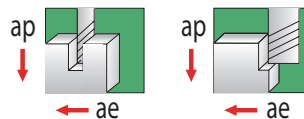
# GARR TOOL High Performance Milling Guide for VRX

NOTE - DATA DOES NOT REFLECT CHIP THINNING.

SPINDLE INTERFACE MUST BE SCRUTINIZED WHEN USING 5/8" DIAMETER AND LARGER END MILLS

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"	
<b>COBALT BASE ALLOYS</b>													
Haynes 25/188, Stellite 21, Cobalt Chrome	< 40 > 40	75 - 150 60 - 125	.0003" - .0006" .0003" - .0005"	.0004" - .0007" .0003" - .0006"	.0005" - .0008" .0004" - .0007"	.0007" - .0012" .0006" - .0010"	.0008" - .0015" .0007" - .0013"	.0010" - .0019" .0009" - .0017"	.0014" - .0024" .0012" - .0020"	.0016" - .0030" .0014" - .0026"	.0020" - .0038" .0018" - .0034"	.0028" - .0048" .0024" - .0040"	
<b>NICKEL BASE ALLOYS</b>													
Inconel-625/718, Waspaloy, Invar, Rene, Hastelloy, Monel	< 40 > 40	75 - 150 60 - 125	.0003" - .0006" .0003" - .0005"	.0004" - .0007" .0003" - .0006"	.0005" - .0008" .0004" - .0007"	.0007" - .0012" .0006" - .0010"	.0008" - .0015" .0007" - .0013"	.0010" - .0019" .0009" - .0017"	.0014" - .0024" .0012" - .0020"	.0016" - .0030" .0014" - .0026"	.0020" - .0038" .0018" - .0034"	.0028" - .0048" .0024" - .0040"	
<b>IRON BASE ALLOYS</b>													
A286, Discaloy, Haynes 556, Carpenter 22, Greek Ascology	< 40 > 40	75 - 150 60 - 125	.0003" - .0006" .0003" - .0005"	.0004" - .0007" .0003" - .0006"	.0005" - .0008" .0004" - .0007"	.0007" - .0012" .0006" - .0010"	.0008" - .0015" .0007" - .0013"	.0010" - .0019" .0009" - .0017"	.0014" - .0024" .0012" - .0020"	.0016" - .0030" .0014" - .0026"	.0020" - .0038" .0018" - .0034"	.0028" - .0048" .0024" - .0040"	
<b>TITANIUM ALLOYS</b>													
Commercially Pure, 6Al-4V, Astm 1/2/3, 6Al-25N-4Zr-2Mo-Si		175 - 300	.0003" - .0006"	.0004" - .0007"	.0005" - .0008"	.0007" - .0014"	.0008" - .0017"	.0010" - .0021"	.0014" - .0028"	.0016" - .0034"	.0020" - .0042"	.0028" - .0056"	
5553 / Beta Titanium		125 - 225	.0003" - .0006"	.0003" - .0007"	.0004" - .0008"	.0007" - .0012"	.0008" - .0015"	.0010" - .0019"	.0014" - .0024"	.0016" - .0030"	.0020" - .0038"	.0028" - .0048"	
<b>STAINLESS STEELS</b>													
M	13/8, 15/5, 17-4, pH Types	< 40 > 40	175 - 300 150 - 225	.0003" - .0006" .0003" - .0005"	.0004" - .0007" .0003" - .0006"	.0005" - .0008" .0004" - .0007"	.0007" - .0012" .0006" - .0010"	.0008" - .0015" .0007" - .0013"	.0010" - .0019" .0009" - .0017"	.0014" - .0024" .0012" - .0020"	.0016" - .0030" .0014" - .0026"	.0020" - .0038" .0018" - .0034"	.0028" - .0048" .0022" - .0040"
	300 Series, 304L, Nitronic 50, Duplex, Super-Austenitic	< 40 > 40	200 - 325 175 - 250	.0003" - .0006" .0003" - .0005"	.0004" - .0007" .0003" - .0006"	.0005" - .0008" .0004" - .0007"	.0007" - .0012" .0006" - .0011"	.0008" - .0015" .0007" - .0014"	.0010" - .0019" .0009" - .0018"	.0014" - .0024" .0012" - .0022"	.0016" - .0030" .0014" - .0028"	.0020" - .0038" .0018" - .0036"	.0028" - .0048" .0024" - .0044"
	400 Series - 403, 405, 420, 455	< 40 > 40	225 - 350 175 - 250	.0003" - .0006" .0003" - .0005"	.0004" - .0007" .0003" - .0006"	.0005" - .0008" .0004" - .0007"	.0007" - .0013" .0006" - .0011"	.0008" - .0016" .0007" - .0014"	.0010" - .0020" .0009" - .0018"	.0014" - .0026" .0012" - .0022"	.0016" - .0032" .0014" - .0028"	.0024" - .0043" .0018" - .0036"	.0028" - .0052" .0024" - .0044"
<b>HIGH STRENGTH TOOL STEELS</b>													
P	A2, D2, P20, H13, S7, O1	< 40 > 40	175 - 300 125 - 275	.0004" - .0007" .0003" - .0005"	.0005" - .0008" .0003" - .0005"	.0006" - .0010" .0005" - .0008"	.0008" - .0013" .0007" - .0010"	.0009" - .0016" .0008" - .0013"	.0011" - .0020" .0010" - .0017"	.0016" - .0026" .0014" - .0020"	.0018" - .0032" .0016" - .0026"	.0022" - .0040" .0020" - .0034"	.0032" - .0052" .0028" - .0040"
	<b>MEDIUM ALLOY TOOL STEELS</b>												
	4140, 4340, 52100, 6150, 8620	< 40 > 40	250 - 400 225 - 300	.0004" - .0007" .0003" - .0005"	.0005" - .0008" .0003" - .0005"	.0006" - .0010" .0005" - .0008"	.0008" - .0014" .0007" - .0011"	.0009" - .0017" .0008" - .0014"	.0011" - .0021" .0010" - .0018"	.0016" - .0026" .0014" - .0022"	.0018" - .0034" .0016" - .0028"	.0022" - .0042" .0020" - .0036"	.0032" - .0056" .0028" - .0044"
<b>CARBON STEELS</b>													
	1000's - 1018, 1020, 12L14	< 40	300 - 425	.0004" - .0007"	.0005" - .0008"	.0006" - .0010"	.0008" - .0015"	.0009" - .0018"	.0011" - .0022"	.0016" - .0030"	.0018" - .0036"	.0022" - .0044"	.0032" - .0060"
<b>CAST MATERIAL</b>													
K	Ductile Iron		300 - 425	.0004" - .0007"	.0005" - .0008"	.0006" - .0010"	.0009" - .0016"	.0010" - .0019"	.0012" - .0023"	.0018" - .0032"	.0020" - .0038"	.0024" - .0046"	.0036" - .0064"
	Gray Iron		325 - 475	.0005" - .0008"	.0007" - .0010"	.0007" - .0012"	.0010" - .0017"	.0011" - .0020"	.0013" - .0024"	.0020" - .0034"	.0022" - .0040"	.0026" - .0048"	.0040" - .0068"

	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.