

GARR TOOL High Performance Drilling Guide

Fractional - Mini Drills

TECHNICAL

Type	Rc Hardness	Recommended SFM	CHIPLOAD PER FLUTE (Fz)		
		Series 1250H 1550H 1850H	1/32" - 0.99mm (.0312" - .0390")	1.00mm - 2.00mm (.0394" - .0787")	2.01mm - 1/8" (.0791" - .1250")
COBALT BASE ALLOYS					
Powdered Metal, Stellite, Hs-21, Haynes 25/188, X-40, L-605	< 35	100 - 150	.0002" - .0004"	.0004" - .0008"	.0006" - .0012"
	> 35	80 - 110	.0002" - .0004"	.0003" - .0006"	.0005" - .0010"
NICKEL BASE ALLOYS					
Invar, Kovar, Inconel-625/718, Waspalloy, Rene, Hastalloy, A286	< 35	125 - 150	.0003" - .0005"	.0004" - .0008"	.0006" - .0012"
	> 35	100 - 125	.0002" - .0004"	.0003" - .0006"	.0005" - .0010"
IRON BASE ALLOYS					
Incoloy 800-802, Multimet N-155, Timkin 16-25-6, Carpenter 22-b3	< 35	125 - 175	.0004" - .0008"	.0006" - .0012"	.0008" - .0015"
	> 35	80 - 100	.0003" - .0006"	.0004" - .0008"	.0006" - .0012"
MONEL					
Monel - 65% Nickel		75 - 125	.0002" - .0004"	.0003" - .0006"	.0005" - .0010"
TITANIUM ALLOYS					
Commercially Pure, 6Al-4V, Astm 1/2/3, 6Al-25N-4Zr-2Mo-Si		150 - 200	.0003" - .0006"	.0004" - .0008"	.0006" - .0012"
STAINLESS STEELS					
(Precipitation) 13/8, 15/5, 17-4, pH Types	< 35	125 - 175	.0003" - .0005"	.0004" - .0008"	.0006" - .0012"
	> 35	80 - 125	.0002" - .0004"	.0003" - .0006"	.0005" - .0010"
(Austenitic) Inox, 200 Series, 300 Series	< 35	100 - 175	.0003" - .0005"	.0004" - .0008"	.0006" - .0012"
	> 35	80 - 125	.0002" - .0004"	.0003" - .0006"	.0005" - .0010"
304L, 316L, Nitronic 50, Inox	< 35	80 - 100	.0003" - .0005"	.0004" - .0008"	.0006" - .0012"
	> 35	60 - 90	.0002" - .0004"	.0003" - .0006"	.0005" - .0010"
(Martensitic) 400 Series	< 35	100 - 150	.0003" - .0005"	.0004" - .0008"	.0006" - .0012"
	> 35	80 - 125	.0002" - .0004"	.0003" - .0006"	.0005" - .0010"
HIGH STRENGTH TOOL STEELS					
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, O1	< 35	100 - 175	.0003" - .0006"	.0004" - .0008"	.0006" - .0012"
	35-48	80 - 130	.0002" - .0005"	.0003" - .0008"	.0006" - .0012"
	> 48	60 - 80	.0002" - .0004"	.0003" - .0006"	.0005" - .0010"
MEDIUM ALLOY TOOL STEELS					
200, 250, 300, 8620	< 35	125 - 175	.0004" - .0008"	.0006" - .0012"	.0008" - .0015"
	> 35	80 - 125	.0003" - .0005"	.0004" - .0008"	.0006" - .0012"
CARBON STEELS					
Platinum, A36, 12L14, 1000's, 1100's, 1300's	< 35	125 - 175	.0004" - .0008"	.0006" - .0012"	.0008" - .0015"
	> 35	80 - 125	.0003" - .0005"	.0004" - .0008"	.0006" - .0012"
CAST MATERIAL					
Steel		100 - 175	.0003" - .0006"	.0004" - .0008"	.0006" - .0012"
Ductile Iron		100 - 200	.0004" - .0008"	.0006" - .0012"	.0008" - .0015"
Gray Iron		80 - 175	.0004" - .0008"	.0006" - .0012"	.0008" - .0015"
Aluminum		100 - 250	.0004" - .0008"	.0006" - .0012"	.0008" - .0015"
ALUMINUM					
2014, 2024, 6061-(T1-T6), 7075, Extruded		125 - 300	.0004" - .0008"	.0006" - .0012"	.0008" - .0015"
MAGNESIUM					
		125 - 250	.0004" - .0008"	.0006" - .0012"	.0008" - .0015"
COPPER					
Copper Alloys		125 - 250	.0004" - .0008"	.0006" - .0012"	.0008" - .0015"
BRASS					
Short Chips Long Chips		125 - 250	.0004" - .0008"	.0006" - .0012"	.0008" - .0015"
		100 - 200	.0003" - .0005"	.0004" - .0008"	.0006" - .0012"
BRONZE					
Short Chips Long Chips		100 - 250	.0004" - .0008"	.0006" - .0012"	.0008" - .0015"
		80 - 175	.0003" - .0006"	.0004" - .0008"	.0006" - .0012"

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