GARR TOOL High Performance Drilling Guide
Mini Drills - *Metric*

Type	Rc Hardness	Recommended M/Min. Series 1250H 1550H 1850H	CHIPLOAD PER FLUTE (Fz) 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 > 35	30 - 45 25 - 35	.005 - .010 .005 - .010	.010 - .020 .008 - .015	.015 - .030 .013 - .025
NICKEL BASE ALLOYS					
Invar, Kovar, Inconel-625/718, Waspalloy, Rene, Hastalloy, A286	< 35 > 35	40 - 45 30 - 40	.008 - .013 .005 - .010	.010 - .020 .008 - .015	.015 - .030 .013 - .025
IRON BASE ALLOYS					
Incoloy 800-802, Multimet N-155, Timkin 16-25-6, Carpenter 22-b3	< 35 > 35	40 - 50 25 - 30	.010 - .020 .008 - .015	.015 - .030 .010 - .020	.020 - .038 .015 - .030
MONEL					
Monel - 65% Nickel		20 - 40	.005 - .010	.008 - .015	.013 - .025
TITANIUM ALLOYS					
Commercially Pure, 6Al-4V, Astm 1/2/3, 6Al-25N-4Zr-2Mo-Si		45 - 60	.008 - .015	.010 - .020	.015 - .030
STAINLESS STEELS					
(Precipitation) 13/8, 15/5, 17-4, pH Types	< 35 > 35	40 - 50 25 - 40	.008 - .013 .005 - .010	.010 - .020 .008 - .015	.015 - .030 .013 - .025
(Austentic) Inox, 200 Series, 300 Series	< 35 > 35	30 - 50 25 - 40	.008 - .013 .005 - .010	.010 - .020 .008 - .015	.015 - .030 .013 - .025
(Austentic) 304L, 316L, Nitronic 50, Inox	< 35 > 35	25 - 30 20 - 25	.008 - .013 .005 - .010	.010 - .020 .008 - .015	.015 - .030 .013 - .025
(Martensitic) 400 Series	< 35 > 35	30 - 45 25 - 40	.008 - .013 .005 - .010	.010 - .020 .008 - .015	.015 - .030 .013 - .025
HIGH STRENGTH TOOL STEELS					
4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, O1	< 35 35-48 > 48	30 - 50 25 - 40 20 - 25	.008 - .015 .005 - .013 .005 - .010	.010 - .020 .008 - .020 .008 - .015	.015 - .030 .015 - .030 .013 - .025
MEDIUM ALLOY TOOL STEELS					
200, 250, 300, 8620	< 35 > 35	40 - 50 25 - 40	.010 - .020 .008 - .013	.015 - .030 .010 - .020	.020 - .038 .015 - .030
CARBON STEELS					
Platinum, A36, 12L14, 1000's, 1100's, 1300's	< 35 > 35	40 - 50 25 - 40	.010 - .020 .008 - .013	.015 - .030 .010 - .020	.020 - .038 .015 - .030
CAST MATERIAL					
Steel		30 - 50	.008 - .015	.010 - .020	.015 - .030
Ductile Iron		30 - 60	.010 - .020	.015 - .030	.020 - .038
Gray Iron		25 - 50	.010 - .020	.015 - .030	.020 - .038
Aluminum		30 - 75	.010 - .020	.015 - .030	.020 - .038
ALUMINUM					
2014, 2024, 6061-(T1-T6), 7075, Extruded		40 - 90	.010 - .020	.015 - .030	.020 - .038
MAGNESIUM					
		40 - 75	.010 - .020	.015 - .030	.020 - .038
COPPER					
Copper Alloys		40 - 75	.010 - .020	.015 - .030	.020 - .038
BRASS					
Short Chips Long Chips		40 - 75 30 - 60	.010 - .020 .008 - .013	.015 - .030 .010 - .020	.020 - .038 .015 - .030
BRONZE					
Short Chips Long Chips		30 - 75 25 - 50	.010 - .020 .008 - .015	.015 - .030 .010 - .020	.020 - .038 .015 - .030

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