

GARR TOOL High Performance Drilling Guide for Mini Drills

	ISO Material	HRC	M/Min. (Vc)	CHIPLOAD PER TOOTH (Fz)		
				0.79 - 0.99mm	1.00 - 2.00mm	2.01 - 3.17mm
S	COBALT BASE ALLOYS					
	Powdered Metal, Stellite, Hs-21, Haynes 25/188, X-40, L-605	< 40	30 - 45	.005 - .010	.010 - .020	.015 - .030
		> 40	25 - 35	.005 - .010	.008 - .015	.013 - .025
	NICKEL BASE ALLOYS					
	Invar, Kovar, Inconel-625/718, Waspalloy, Rene, Hastelloy, A286	< 40	40 - 45	.008 - .013	.010 - .020	.015 - .030
		> 40	30 - 40	.005 - .010	.008 - .015	.013 - .025
	IRON BASE ALLOYS					
	Incoloy 800-802, Multimet N-155, Timkin 16-25-6, Carpenter 22-b3	< 40	40 - 50	.010 - .020	.015 - .030	.020 - .038
> 40		25 - 30	.008 - .015	.010 - .020	.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	
M	STAINLESS STEELS					
	(Precipitation) 13/8, 15/5, 17-4, pH Types	< 40	40 - 50	.008 - .013	.010 - .020	.015 - .030
		> 40	25 - 40	.005 - .010	.008 - .015	.013 - .025
	(Austenitic) 200 Series, 300 Series	< 40	30 - 50	.008 - .013	.010 - .020	.015 - .030
		> 40	25 - 40	.005 - .010	.008 - .015	.013 - .025
	(Austenitic) 304L, 316L, Nitronic 50	< 40	25 - 30	.008 - .013	.010 - .020	.015 - .030
		> 40	20 - 25	.005 - .010	.008 - .015	.013 - .025
	(Martensitic) 400 Series	< 40	30 - 45	.008 - .013	.010 - .020	.015 - .030
> 40		25 - 40	.005 - .010	.008 - .015	.013 - .025	
P	HIGH STRENGTH TOOL STEELS					
	4140, 4340, 6150, 5210, A2, D2, P20, H11, H13, S2, O1	< 40	30 - 50	.008 - .015	.010 - .020	.015 - .030
		> 40	20 - 25	.005 - .010	.008 - .015	.013 - .025
	MEDIUM ALLOY TOOL STEELS					
	200, 250, 300, 8620	< 40	40 - 50	.010 - .020	.015 - .030	.020 - .038
		> 40	25 - 40	.008 - .013	.010 - .020	.015 - .030
	LOW CARBON STEELS					
	Platinum, A36, 12L14, 1000's, 1100's, 1300's	< 40	40 - 50	.010 - .020	.015 - .030	.020 - .038
> 40		25 - 40	.008 - .013	.010 - .020	.015 - .030	
CAST STEELS						
Steel		30 - 50	.008 - .015	.010 - .020	.015 - .030	
K	CAST MATERIAL					
	Ductile Iron		30 - 60	.010 - .020	.015 - .030	.020 - .038
	Gray Iron		25 - 50	.010 - .020	.015 - .030	.020 - .038
N	NON-FERROUS					
	Aluminum 2014, 2024, 6061-(T1-T6), 7075, Extruded		40 - 90	.010 - .020	.015 - .030	.020 - .038
		Magnesium		40 - 75	.010 - .020	.015 - .030
	Copper		40 - 75	.010 - .020	.015 - .030	.020 - .038
	Brass		30 - 75	.008 - .020	.010 - .030	.015 - .038
	Bronze		25 - 75	.008 - .020	.010 - .030	.015 - .038

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