

Machining Data for Solid Carbide Drills - IC608 D=.118”-.787”

I N C H							I N C H											
ISO	Material		Condition	Tensile Strength [Kpsi]	Hardness HB	Material No.	Cutting Speed V _c (SFM)	Feed (IPR) vs. Drill Diameter										
								Ø.118-.197	Ø.200-.315	Ø.319-.472	Ø.476-.630	Ø.633-.787						
P	Non-alloy steel and cast steel, free cutting steel	<0.25% C	Annealed	61	125	1	262-393	0.004-0.007	0.006-0.010	0.008-0.012	0.008-0.014	0.010-0.016						
		>=0.25% C	Annealed	94	190	2	262-360	0.004-0.007	0.006-0.010	0.008-0.012	0.008-0.014	0.010-0.016						
		<0.55% C	Quenched and tempered	123	250	3	230-328	0.004-0.008	0.006-0.011	0.008-0.014	0.008-0.015	0.010-0.017						
		>=0.55% C	Annealed	109	220	4												
			Quenched and tempered	145	300	5												
	Low alloy steel and cast steel (less than 5% of alloying elements)		Annealed	87	200	6	230-295	0.004-0.007	0.006-0.010	0.008-0.012	0.008-0.014	0.010-0.016						
			Quenched and tempered	35	275	7												
				145	300	8							196-262	0.004-0.007	0.006-0.010	0.008-0.012	0.008-0.014	0.010-0.016
				174	350	9							164-230	0.004-0.008	0.006-0.011	0.008-0.014	0.008-0.015	0.010-0.017
	High alloyed steel, cast steel, and tool steel		Annealed	99	200	10	196-262	0.004-0.008	0.006-0.011	0.007-0.014	0.008-0.015	0.010-0.017						
			Quenched and tempered	160	325	11	164-230	0.004-0.006	0.005-0.008	0.006-0.010	0.006-0.012	0.007-0.013						
	Stainless steel and cast steel		Ferritic/martensitic	99	200	12	82-246	0.002-0.004	0.002-0.006	0.002-0.007	0.003-0.008	0.004-0.008						
			Martensitic	119	240	13	82-246	0.002-0.004	0.002-0.006	0.002-0.007	0.003-0.008	0.004-0.008						
M	Stainless steel		Austenitic	87	180	14	82-246	0.002-0.004	0.002-0.006	0.002-0.007	0.003-0.008	0.004-0.008						
K	Grey cast iron (GG)		Ferritic/pearlitic		180	15	278-344	0.006-0.010	0.008-0.014	0.010-0.018	0.012-0.020	0.014-0.022						
			Pearlitic		260	16	246-295	0.006-0.010	0.008-0.014	0.010-0.018	0.012-0.020	0.014-0.022						
	Nodular cast iron (GGG)		Ferritic		160	17	212-262	0.005-0.008	0.006-0.010	0.080-0.014	0.010-0.016	0.012-0.018						
			Pearlitic		250	18												
	Malleable cast iron		Ferritic		130	19												
			Pearlitic		230	20												
N	Aluminum-wrought alloy		Not cureable		60	21	230-980	0.004-0.010	0.006-0.014	0.010-0.018	0.012-0.020	0.014-0.022						
			Cured		100	22												
	Aluminum-cast, alloyed	<=12% Si	Not cureable		75	23	230-650											
			Cured		90	24												
		>12% Si	High temperature		130	25	230-980	0.003-0.007	0.005-0.010	0.008-0.014	0.010-0.018	0.012-0.020						
	Copper alloys	>1% Pb	Free cutting		110	26												
			Brass		90	27												
			Electrolitic copper		100	28												
	Non-metallic		Duroplastics, fiber plastics			29												
			Hard rubber			30												
S	High temp. alloys		Fe based	Annealed		200	31	48-115	0.001-0.003	0.002-0.004	0.002-0.005	0.003-0.006	0.003-0.007					
				Cured		280	32											
			Ni or Co based	Annealed		250	33											
				Cured		350	34											
				Cast		320	35											
	Titanium Ti alloys			58		36												
			Alpha+beta alloys cured	152		37												
H	Hardened steel		Hardened		55 HRC	38	130-230	0.002-0.004	0.003-0.005	0.004-0.006	0.005-0.006	0.006-0.007						
			Hardened		60 HRC	39												
	Chilled cast iron		Cast		400	40												
	Cast iron		Hardened		55 HRC	41												

- When using external coolant supply only, reduce cutting speed by 10%
- Use internal coolant supply when machining austenitic stainless steel

As a starting value, the middle of the recommended machining range should be used.

Then, (according to wear results), conditions can be changed in order to optimize performance.