

**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 <sub>c</sub> (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	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		
					35	275	7								
		Quenched and tempered			145	300	8							196-262	0.004-0.007
	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			75	23								
			Cured			90	24								
	Copper alloys		>12% Si			130	25								
			>1% Pb			110	26								
			Free cutting			90	27								
	Non-metallic		Electrolytic copper			100	28								
Duroplastics, fiber plastics					29										
		Hard rubber				30									
S	High temp. alloys		Fe based			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.