

Machining Recommendations															
ISO	Material		Condition	Tensile Strength [N/mm²]	Material Group No.	Hardness HB	Adjustable Solid Drill Heads DSD-EC, DDD-EC, DSD-IC								
							Chipbreaker			Dia. Range	38.00-39.99	40.00-51.99	52.00-63.99	64.00-84.99	85.00-293.00
							First Choice	Troubleshooting							
P	Non-alloy steel and cast steel, free cutting steel	<0.25% C	Annealed	420	1	125	G IC908	BG IC806	B IC9025	60-120	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
		≥0.25% C	Annealed	650	2	190				60-120	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
		<0.55% C	Quenched and tempered	850	3	250				60-120	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
		≥0.55% C	Annealed	750	4	220				60-120	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
			Quenched and tempered	1000	5	300				60-120	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
	Low alloy and cast steel (less than 5% of alloying elements)	Annealed	600	6	200	G IC908	BG IC806	B IC9025	60-100	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3	
			Quenched and tempered	930	7				275	60-100	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
			1000	8	300				50-100	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3	
			1200	9	350				50-100	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3	
	High alloyed steel, cast steel and tool steel	Annealed	680	10	200	G IC908	BG IC806	B IC9025	60-120	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3	
		Quenched and tempered	1100	11	325				60-120	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3	
	Stainless steel and cast steel	Ferritic/martensitic	680	12	200	G IC908	BG IC806	B IC9025	60-110	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3	
		Martensitic	820	13	240				60-110	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3	
	M	Stainless steel and cast steel	Austenitic, duplex	600	14	180	G IC806	B IC908	B IC9025	60-110	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
Gray cast iron (GG)		Ferritic / pearlitic		15	180	G IC908	G IC806	B IC9025	80-140	0.20-0.30	0.20-0.30	0.24-0.32	0.24-0.32	0.25-0.40	
	Pearlitic / martensitic		16	260	80-140				0.20-0.30	0.20-0.30	0.24-0.32	0.24-0.32	0.25-0.40		
K	Nodular cast iron (GGG)	Ferritic		17	160	G IC908	G IC806	B IC9025	80-140	0.20-0.30	0.20-0.30	0.24-0.32	0.24-0.32	0.25-0.40	
		Pearlitic		18	250				80-140	0.20-0.30	0.20-0.30	0.24-0.32	0.24-0.32	0.25-0.40	
	Malleable cast iron	Ferritic		19	130				80-140	0.20-0.30	0.20-0.30	0.24-0.32	0.24-0.32	0.25-0.40	
		Pearlitic		20	230				80-140	0.20-0.30	0.20-0.30	0.24-0.32	0.24-0.32	0.25-0.40	
N	Aluminum-wrought alloys	Not hardenable		21	60	G IC908	G IC806	B IC9025	100-200	0.08-0.2	0.1-0.25	0.13-0.28	0.15-0.3	0.18-0.33	
		Hardenable		22	100				100-200	0.08-0.2	0.1-0.25	0.13-0.28	0.15-0.3	0.18-0.33	
	Aluminum-cast alloys	≤12% Si	Not hardenable		23				75	100-200	0.08-0.2	0.1-0.25	0.13-0.28	0.15-0.3	0.18-0.33
		Hardenable		24	90				100-200	0.08-0.2	0.1-0.25	0.13-0.28	0.15-0.3	0.18-0.33	
	>12% Si	High temperature		25	130				100-200	0.08-0.2	0.1-0.25	0.13-0.28	0.15-0.3	0.18-0.33	
	Copper alloys	>1% Pb	Free cutting		26				110	100-200	0.08-0.2	0.1-0.25	0.13-0.28	0.15-0.3	0.18-0.33
		Brass			27				90	100-200	0.08-0.2	0.1-0.25	0.13-0.28	0.15-0.3	0.18-0.33
			Electrolytic copper						28	100	100-200	0.08-0.2	0.1-0.25	0.13-0.28	0.15-0.3
	Non metallic	Duroplastics, fiber plastics			29				70 Shore D	60-130	0.08-0.2	0.1-0.25	0.13-0.28	0.15-0.3	0.18-0.33
		Hard rubber			30				55 Shore D	60-130	0.08-0.2	0.1-0.25	0.13-0.28	0.15-0.3	0.18-0.33
S	High temperature alloys	Fe based	Annealed		31	200	B IC806	B IC908	B IC9025	20-65	0.06-0.13	0.08-0.18	0.13-0.23	0.13-0.23	0.18-0.28
			Hardened		32	280				20-65	0.06-0.13	0.08-0.18	0.13-0.23	0.13-0.23	0.18-0.28
		Ni or Co based	Annealed		33	250				20-65	0.06-0.13	0.08-0.18	0.13-0.23	0.13-0.23	0.18-0.28
			Hardened		34	350				30-100	0.06-0.13	0.08-0.18	0.13-0.23	0.13-0.23	0.18-0.28
			Cast		35	320				30-100	0.06-0.13	0.08-0.18	0.13-0.23	0.13-0.23	0.18-0.28
	Titanium alloys	Pure		400	36	190				30-60	0.06-0.13	0.08-0.18	0.13-0.23	0.13-0.23	0.18-0.28
		Alpha+beta alloys, hardened		1050	37	310				30-60	0.06-0.13	0.08-0.18	0.13-0.23	0.13-0.23	0.18-0.28
H	Hardened steel	Hardened		38	55 HRC	B IC806	B IC908	B IC908	30-80	0.06-0.13	0.08-0.18	0.13-0.23	0.13-0.23	0.15-0.28	
		Hardened		39	60 HRC				30-80	0.06-0.13	0.08-0.18	0.13-0.23	0.13-0.23	0.15-0.28	
	Chilled cast iron	Cast		40	400				30-80	0.06-0.13	0.08-0.18	0.13-0.23	0.13-0.23	0.15-0.28	
	Cast iron	Hardened		41	55 HRC				30-80	0.06-0.13	0.08-0.18	0.13-0.23	0.13-0.23	0.15-0.28	