## Machining Recommendations for FINEBEAM Drills

				Tensile Strenath	Material Group	Hardness		Cutting	Feed	: f (IPR)
0								speed	Drill dia. (inch)	
N N	Mate	erial	Condition	[ksi]	No.	(HB)	Chipbreaker	V <sub>c</sub> (SFM)	Ø.984 - 1.693	Ø <b>1.6933 - 3.504</b>
	inate			Licol		(112)	HF	230 - 425	004 - 016	006 - 018
Ρ		< 0.25% C	Annealed	61	1	125	G	230 - 425	004 - 012	$0.000 \cdot 0.010$
	Non-alloy steel and cast steel, free cutting steel	≥ 0.25% C < 0.55% C	Annealed Quenched and tempered	94 123	2	190 250		230 - 425		
								230 - 423		
								230 - 423	004012	.005014
								230 - 423	.004016	.000018
							G	230 - 425	.004012	.005014
		≥ 0.55% C	Annealed	109	4	220		230 - 425	.004016	.006018
							G	230 - 425	.004012	.005014
			Ovenched and tempered	1/5	5	300	HF	230 - 425	.004016	.006018
				140	0	000	G	<u> 230 - 425</u>	.004012	.005014
			Annealed	87	6	200	HF	230 - 395	.004016	.008018
			Aimealed	07	0	200	G	230 - 395	.004012	.005014
	Low alloy and cast steel (less than 5% of alloying elements)			105	7	075	HF	180 - 360	.004016	.008018
			Quenched and tempered	130	(	275	G	195 - 395	.004012	.005014
					0	000	HF	180 - 360	.004016	.008018
				145	8	300	G	195 - 395	.004012	.005014
				174	9		HF	180 - 360	.004016	.008018
						350	G	195 - 395	004 - 012	005 - 014
							HF	180 - 360	004 - 015	008 - 016
	High alloyed steel, cast steel and tool steel		Annealed	99	10	200	G	230 - 125	001 - 012	005 - 01/
								180 360		
			Quenched and tempered	160	11	325	G	100 - 300		
								120 - 420		
	Stainless steel and cast steel		Ferritic/martensitic	99	12	200		130 - 300		
								230 - 423	.004012	.000014
			Martensitic	119	13	240	HF	130 - 360	.004016	.008018
		1					G	230 - 425	.004012	.005014
Μ	Stainless steel		Austenitic duplex	87	14	180		130 - 360	.004016	.008018
	and cast steel Grey cast iron (GG)			01		100	G	230 - 425	.004012	.005014
			Forritio/poorlitio		15	100	HF	165 - 360	.004015	.009016
			remuc/peanuc		10	100	G	165 - 360	.00401	.005014
			Doorlitio/mortopoitio		16	260	HF	165 - 360	.004015	.009016
			Feanilic/martensilic		10	200	G	165 - 360	.00401	.005014
К	Nodular cast iron (GGG)		Forritio		17	160	HF	165 - 360	.004015	.009016
			Ferniic			250	G	165 - 360	.00401	.005014
			Doorlitio		10		HF	165 - 360	.004015	.009016
			reamilic		18		G	165 - 360	.00401	.005014
	Malleable cast iron		Forritio		10	120	HF	165 - 360	.004015	.009016
			Fernuc		19	130	G	165 - 360	.00401	.005014
			Doorlitio		20	020	HF	165 - 360	.004015	.009016
			Fearillic		20	230	G	165 - 360	.00401	.005014
N	Aluminum-wrought alloys		Not bordonable		01	60	HF	215 - 490	.004013	.009014
			NOUTIAI GEHADIE		21	00	G	215 - 425	.00401	.005014
			Hardonabla		00	100	HF	215 - 490	.004013	.009014
			T la del lable		22	100	G	215 - 425	.003009	.005011
			Not bardonabla		02	75	HF	215 - 490	.004013	.009014
			Not hardenable		20	10	G	215 - 425	.003009	.005011
	Aluminum-	≤ 12% Si >12% Si	Hardonabla		24	00	HF	215 - 490	.004013	.009014
	cast alloys		I la del lable		24	90	G	215 - 425	.003009	.005011
			High tomporaturo		25	120	HF	215 - 490	.004013	.009014
			r light temperature			150	G	215 - 425	.003009	.005011
		1% Ph	Free outting		26	110	HF	215 - 490	.004013	.009014
	Conner allovs	>1% PD	Thee cutting		20	110	G	215 - 425	.003009	.005011
			Brass		27	90	HF	215 - 490	.004013	.009014
			DId35			30	G	215 - 425	.003009	.005011
			Electrolitic copper		28	100	HF	215 - 490	.004013	.009014
							G	215 - 425	.003009	.005011
S		Fe base	Appealed		31	200	HF	65 - 180	.004012	.008013
	High temp. alloys		Ailliealeu			200	G	65 - 165	.003009	.005011
			Hardened		32	280	HF	65 - 180	.004012	.008013
					52	200	G	<u>65 - 165</u>	.003009	.005011
		Ni / Co base	Annealed		22	250	HF	<u>65 - 180</u>	.004012	.008013
					00	200	G	65 - 165	.003009	.005011
			Hardened		34	350	HF	65 - 180	.004012	.008013
					04	300	G	65 - 165	.003009	.005011
			Cast		35	320	HF	65 - 180	.004012	.008013
			Ouor			020	G	65 - 165	.003009	.005011
	Titanium alloys		Pure	58	36		HF	100 - 195	.004012	.008013
							G	100 - 195	.003009	.005011
			Alpha+beta alloys	152	37			100 - 195	.004012	.008013
			hardened				G	100 - 195	.003009	.005011
	Hardened ste	$el \ge 40$ HRC	Hardened		38		HF	100 - 195	.004012	.008013
							G	100 - 195	.003009	.005011