



RHINO DRILLS OPERATING GUIDELINES - 3XD & 5XD

ISO	Material	Condition	Tensile Strength (N/mm ²)	Hardness HB	Mtl Group No.	Cutting Speed Vc (sfm)	Cutting Diameter IPR (inches/rev)												
							3.0-6.0mm (.125-.250")	6.0-9.0mm (.250-.375")	9.0-12.0mm (.375-.500")	12.0-16.0mm (.500-.625")	16.0-19.05mm (.625-.750")	19.05-20.0mm (.750-.787")							
P	Non-alloy steel and cast steel Free cutting steel	< 0.25 %C	Annealed	420	125	1	375	.003 - .005	.005 - .0075	.0075 - .010	.010 - .013	.013 - .016	.016 - .0175						
		>= 0.25 %C	Annealed	650	190	2													
		< 0.55 %C	Quenched and tempered	850	250	3													
		>= 0.55 %C	Annealed	750	220	4													
		> 0.55 %C	Quenched and tempered	1000	300	5													
	Low alloy steel and cast steel (less than 5% of alloying elements)	Annealed	600	200	6	275	.003 - .005	.005 - .0075	.0075 - .010	.010 - .013	.013 - .016	.016 - .0175							
			930	275	7														
			Quenched and tempered	1000	300								8						
			1200	350	9														
	High alloyed steel, cast steel, and tool steel	Annealed	680	200	10	275	.003 - .005	.005 - .0075	.0075 - .010	.010 - .013	.013 - .016	.016 - .0175							
Quenched and tempered		1100	325	11															
M	Stainless Steel (410, 416, 420, 440)	Ferritic/Martensitic	680	200	12	230	.0023 - .0047	.0047 - .0070	.0070 - .0094	.0094 - .0126	.0126 - .0140	.0140 - .0155							
	Stainless Steel (15-5, 17-4 PH)	Martensitic	820	240	13														
	Stainless Steel (302, 303, 304)	Austenitic	600	180	14								165-180	.0023 - .0047	.0047 - .0060	.0060 - .0080	.0080 - .0110	.0110 - .0125	.0125 - .0140
	Stainless Steel (310, 316, 321)																		
	Duplex Stainless Steel (323, 329, F55, 2205)	Austenitic / Ferritic	820	240	14								140-150	.0020 - .0035	.0035 - .0045	.0045 - .0050	.0050 - .0055	.0055 - .0060	.0060 - .0075
S	Titanium Ti alloys Ti1100, Ti6AL4V		Rm 400		36	135 - 150	.002 - .003	.003 - .004	.004 - .005	.005 - .0065	.0065 - .008	.008 - .0095							
		Alpha + Beta alloys cured	Rm 1050		37														

For best results, reduce feed rate to 50% when breaking through the material.