



## GENERAL BIT APPLICATION

# ROTACAN - ADVANCED PERFORMANCE (AP) ROTARY DRILL BITS

### INNOVATION AND PERFORMANCE

Rock UCS (Psi)	Rotacan TCI Rock Bit Series	Rock Type	Competitor Model Comparison Guide					
Rock Hardness - Softest to Hardest			Sandvik	Varel	AC	Focus	Shareate	Tricon
0		Claystone, Mudstone	RR220	RB30				
2000		Chalky Limestone	X07	DF30	Mag42S	F33	SA412	WLS30
4000/Mpa34		Soft Shale	X10		Mag43C	F35	SA415	
6000		Semi Consolidated Sandstone	RR321			F37	SA422	
8000	AP4	Limestone Siltstone	S07	RB40	Mag44CA		SA425	WLS40
10000/Mpa69	4-1xx	Consolidated Sandstones	S10	DF40	Mag44C	F4	SA435	
12000/Mpa83	to	Medium Shales	S15					
14000	4-4xx	Tuff, Soft Schist						
16000/Mpa117		Andesite, Rhyolite		RB43	Mag52			WLS50
18000	AP5	Quartzite (Sand Silt)	X20	DF43	Mag53C	F5		
20000/Mpa138	5-1xx	Limestone, Marble	S20	RB50	HDNT52			
22000	to	Monzonite, Granite						
24000	5-4xx	Geneiss	S30	DF50		F55		
26000		Diorite Diabase	X30	RB53	HDNT53		SA535	
28000	AP6	Hard Shale, Slate	S39	DF53	eH53	F6	SA545	WLS60
30000/Mpa207	6-1xx	Limestone, Dolomite	X40		HDNT62		K845	
32000	to	Basalt	S47	RB60				
34000/Mpa234	6-4xx	Tactite, Skarn	X47	DF60		F65		
36000		Granodiorite						
38000		Taconite			HDNT62			
40000		Quartzite	X50	RB63		F67	SA635	
42000	AP7	Senite	S50	DF63	HDNT63		TJ635	WLS70
44000	7-1xx	Gabbro			HDNT64	F7	SA645	
46000/Mpa310+	to		X60	RB67	eH64			
48000	7-4xx		S60	DF67	HDNT71	F75	SA715	
50000/Mpa344		Banded Iron Formation						
52000		Taconite	X70	RB70	HDNT72			
54000		Chert	S70	DF70	HDNT73			
56000				RB80	HDNT81	F8		
58000		Quartzite						
60000								
62000		Amphibolite						
64000		Hornfels						
68000		Hematite Ore						
70000		"Lava" Basalt, Biwabac						
Higher		Quartzite						

Specific bit models may be used in harder or softer rock than indicated on this chart.

Rock (UCS) hardness (Unconfined Compressive Strength) is only one factor that contributes to "drillability" of any rock. Other factors strongly influencing drillability are: Fracture Toughness, Shear Strength, Young's Modulus of Elasticity, Poisson's Ratio of stress vs strain, Internal Angle of Friction. Rock variables must be considered when attempting to determine the best bit for overall life at optimum penetration rates. Other equally important factors affecting drilling performance are specific to the drilling equipment and operator. Notable items include: Driller experience and training, Compressor size and condition, Mechanical condition of the drill, Pipe size and straightness, Stabilizer size and condition, Deck bushing size and condition, Surface condition and overburden, Sub surface blast fracturing, Angle drilling, Revolutions per minutes utilized, Weight applied to bit, Hole cleaning, Water applied for dust control, Lubrication provided for bit bearings, etc. Rotacan works directly with mine personnel to develop the optimum bit for site conditions.