

Product Report



Pictures may not show every (all) optional feature (s) on actual bit

8 1/2" RD21M-A1

Design Features of this bit

RockForce™

Premium journal bearing insert and tooth bits in sizes 3 3/4" through 12 1/4". Key to the product line is the completely new RockForce™ bearing system, re-engineered from the ground up to provide consistent, superior performance in the constantly increasing demands of directional and vertical drilling. Additional technologies include SuperTuff™ inserts, MatchFit™ insert retention and industry-leading MudPick® hydraulics.

Premium Journal Bearing

Precision finished journal bearing with silver plated bushing, silver plated thrustwasher and stellite inlay. Includes precisely ground ball bearings, fully encapsulated in cone and journal for maximum cone retention at higher energy levels.

Radial Seal - HNBR

Hydrogenated Nitrile Butadiene Rubber (HNBR) radial seal.

MudPick II® Hydraulics

Patented nozzle design directing a sweeping fluid flow directly into the cutting path at the formation failure zone. The most aggressive hydraulic arrangement to maximize cleaning and ROP.

WideCut™ Insert Placement

Strategically staggered insert placement reducing kerf wear and tracking.

GageGuard™

Additional row of protruding inserts located between gauge row teeth providing superior gauge protection.

SuperTuff™ Inserts

Optimized carbide composition and insert geometries to maximize fracture toughness and wear resistance.

TuffGage™

Maximum density of carbide heel inserts on heel of cone for added gauge protection.

MatchFit™ Insert Retention.

Patented process that captures entire insert shank, improving insert retention especially with large diameter inserts.

KerfStop™ Chisel Insert

Special insert design for directional drilling. Wedge shaped insert design positions more tungsten carbide towards the outer/gage side of inner row inserts, retarding kerf development, reducing premature insert and cone shell wear.

P (KPR) Premium Shirttail Protection

Protruding round top inserts for added wear resistance and improved stability without limiting annular flow area.

General Data

IADC Code	517
Bearing Type	Friction - Bushing
Seal Type	RADIAL - HNBR
Journal Angle	33°
Cone Skew	3°

Cutting Structure

Gauge Row Inserts	
Count	41
Shape	Conical Formed Gage Chisel
Main Row Inserts	
Shape	Taper Crested Flat Top Chisel
Total Count	111
API Pin Size (ins)	4.500"
Maximum make-up Torque (ft-lbs)	16000
Shipping Weight (lbs)	95
Nozzle Code	C

Recommended Operating Parameters

Weight on Bit Range	
Max (klbs)	60
Min (klbs)	20
Max (tonne)	27
Min (tonne)	9
Rotary Speed (RPM)	250-50

Additional Information

Min Annular Area (in ²)	10.70
Bit Breaker	138185

In some applications this bit is run successfully beyond these parameters. Contact your NOV Downhole Representative for recommended operating parameters in your application. NOV Downhole reserves the right to revise these specifications, based on advances and improvements in technology.

This report is valid for 30 days from 17-May-2012



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