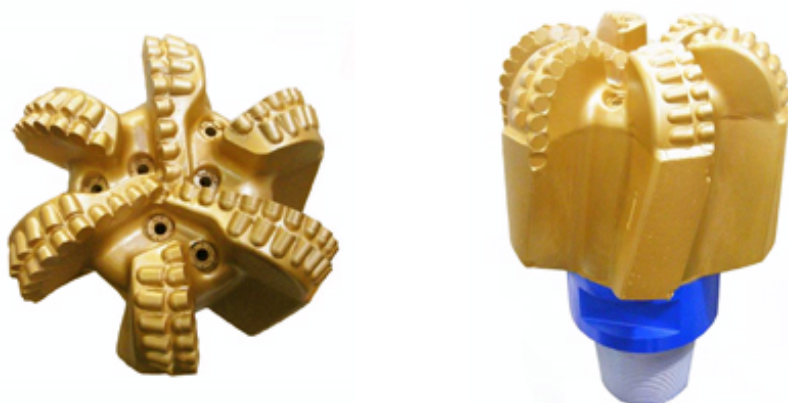


Product Report



13 1/8" DSH616M-A1

Design Features of this bit

Helios™ Cutters - Advanced Thermostable PDC cutters designed specifically for maximum thermal toughness. The cutter combines high-density polycrystalline diamond material specifically selected for impact toughness, abrasion resistance and enhanced thermal toughness. The patented deep leach technology provides this thermal toughness to reduce cutter degradation significantly, allowing the bit to drill considerably further and faster to improve overall bit performance.

DiamondBack™ cutters - Are strategically positioned in the critical wear areas of the bit to provide a second row of cutters to some or all blades. This gives up to twice the PDC cutter density, enhancing the durability of the bit or tool, giving more footage and a higher average ROP (since the bit stays sharper for longer). Additionally, lateral stability is improved since the effective number of blades is dramatically increased. Available as an option in Hybrid PDC bits and tools, DiamondBack cutters replace the diamond impregnated studs in critical areas of the bit or tool.

Cutting Structure

Type	Qty	Location	Diameter	Shape
Primary	55	FACE	16 mm	CYLINDER
Primary	9	GAGE	16 mm	CYLINDER
Secondary	39	FACE	16 mm	CYLINDER
Upream	6	BACK-ANGLE	13 mm	CYLINDER

Design Specifications

Make up Length (ft):	1.25
Shank Bore (ins):	2.835
Shank Diam (ins):	8.000
Connection std:	Y
Connection Size(ins):	6.625
Connection Type:	Api Reg Pin
Make up Torque (ft-lbs):	47500

IADC Code92:	M422
Diameter:(ins)	13 1/8"

Body Material:	Matrix
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JSA(in ²):	51.20
Face Volume:(in ³)	211.30
Normalised Face vol:	54.20%

Blade Qty:	6
Gauge Length:(ins)	6.000
Gauge Geometry:	Spiral-Trailing
Profile:	Medium Taper - Medium Cone

Recommended Operating Parameters

Max Operating WOB (klbs):	52
TFA Range (ins ²):	.2946-2.2272
Max Flow (gpm):	1100
Pressure Drop(psi):	700 - 2500
HSI:	2-7

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 16-May-2012

Nozzles & Ports

Qty	Type	Size
6	TNZ	VARIABLE