

UltraMotors

Black Diamond's UltraMotors set the industry standard for cost-efficient, reliable, and resilient directional drilling operations in the most challenging environments ensuring unparalleled performance at every deployment. Designed with patented technology for reliability Black Diamond's UltraMotors incorporate the latest developments in high torque – high speed power sections to provide users with an exemplary tool for delivering superior performance in aggressive wells. With a focus on reliability, ease of use, and optimized cost efficiency, UltraMotors empower your operations with unwavering precision and durability, allowing you to conquer any drilling challenges with confidence.

Features and Benefits

UltraMotors offer the flexibility needed to meet the wide range of applications in which they are deployed. Utilizing patented driveline technology, maximized thru-bore and bypass ports, and enhanced geometry, the M Series gives you a tool you can count on for superior performance. Each of the three M-Series motors can be trusted to perform in any section of the well but are also recognized for their specific designs which are proven to succeed in the most challenging operations:

- **M40** - A standard bit-to-bend length makes this high performance motor the choice for the drilling of high precision curves.
- **M41** - A longer bit-to-bend and increased WOB and overpull capacities make this the standard solution for laterals and shallow tangents.
- **M42** - Also known as the Matador, this system has been designed specifically for motor assisted RSS operations. >30% reduction in fluid bypass ensures maximum flow reaches the RSS. The tool is often deployed in a pin-down configuration.

Market Leading Flex-Shaft Drivelines

Black Diamond are in a unique position to offer TWO market leading drivelines - the legendary WK5 and the streamlined ST1. The unique designs allow for unparalleled flexibility in navigating the complexities of downhole environments while delivering exceptional strength and resilience. This results in unmatched reliability while supporting higher torque limits and maximizes drilling efficiency by transmitting power with minimal loss.



Proven Bearing Technology

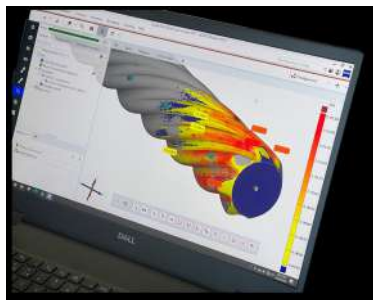
Our industry proven thrust and radial bearings are custom designed for mud lubricated applications, delivering superior, uniform and consistent load distribution and maximized WOB capacity. This is all achieved with our proprietary compact design.

Performance Optimized Elastomers

Black Diamond recognizes that operational success often relies on flexibility to exactly meet the environmental constraints faced in the current industry. To this end we offer a wide range of elastomers and work closely with our suppliers to ensure the highest quality is always delivered. Adding a range of fit options ensures power delivery exactly matches operational needs.

Housing and Mandrel Connections

The UltraMotor housing connections feature increased thread root radii, which enables more effective cold working of threads and reduces stress applied to connections for improved fatigue life under increased side loads. Additionally, our new mandrel boasts a larger OD that substantially increases torque capacity and rigidity.



End of Life Motor & Rotor Plan

Black Diamond owns every step of the manufacture and service of UltraMotors placing us in the enviable position of having control of ALL data collected during the entire life cycle of a motor. Employing advanced testing and scanning technologies combined with sophisticated data analysis Black Diamond ensures timely retirement and replacement of all critical parts before any risk of failure can be encountered.

UltraMotor Options 5-1/4 to 6-1/2

Bearing Assembly	5-1/4	5-1/4 REDUCED BYPASS MOTOR	5-1/2	5-3/4	6-1/2
Series	M40	M42	M40	M40	M40
Bit to Bend Fixed / Adjustable (inches)	40 / N/A	N/A / N/A	43 / N/A	47 / 58	51 / N/A
Top Sub Options ¹	NC38 (3-1/2 IF), XT-39, DS42, NC40	NC38 (3-1/2 IF), XT-39, DS42	NC38 (3-1/2 IF), XT-39, DS42	NC38 (3-1/2 IF), XT-39, DS42	NC50 (5 XH, 4-1/2 IF), NC46 (4 IF, 4-1/2 XH)
Bit Box Options ¹	3-1/2 Reg, NC40 (4 FH), XT-39 Pin Down	XT-39 Pin Down	3-1/2 Reg, NC40 (4 FH), XT-39 Pin Down	3-1/2 Reg, NC40 (4 FH), XT-39 Pin Down	4-1/2 Reg, 4-1/2 IF Pin Down
Powers Size Configuration RPG Flow Range	525 5/6 9.9 0.700 250-450	525 5/6 9.9 0.700 250-450	550 7/8 8.5 0.500 240-440	575 6/7 10.6 0.600 300-500	625 7/8 3.0 0.196 300-600
	525 7/8 8.3 0.480 200-400	525 7/8 8.3 0.480 200-400			650 7/8 6.0 0.288 300-650
					650 7/8 3.0 0.155 300-600
					663 5/6 9.5 0.340 450-750
					675 7/8 6.4 0.288 300-650
					675 7/8 5.7 0.242 300-650
Fixed Bend Options	Straight, 150, 175, 183, 2.00, 2.12, 2.25, 2.38	Straight	Straight, 150, 175, 183, 2.00, 2.12, 2.25, 2.38	Straight, 150, 175, 183, 2.00, 2.12, 2.25, 2.38	Straight, 150, 175, 183, 2.00, 2.12, 2.25, 2.38
Adjustable Bend Options	N/A	N/A	N/A	0.00 - 3.00	N/A
Stabilization Options	True Slick Integrated Integral Blade Stabilizer	True Slick Integrated Integral Blade Stabilizer	True Slick Integrated Integral Blade Stabilizer	True Slick Integrated Integral Blade Stabilizer	True Slick Integrated Integral Blade Stabilizer Slick Sleeve Screw-On Stabilizer

UltraMotor Options 7-1/4 to 9-5/8

Bearing Assembly	7-1/4	7-1/4	7-1/4 REDUCED BYPASS MOTOR	8-1/4	9-5/8
Series	M40	M41	M42	M40	M40
Bit to Bend Fixed / Adjustable (inches)	45 / 57	60 / 72	N/A / N/A	52 / 66	78 / 94
Top Sub Options ¹	NC50 (5 XH, 4-1/2 IF), NC46 (4 IF, 4-1/2 XH)	NC50 (5 XH, 4-1/2 IF), NC46 (4 IF, 4-1/2 XH)	NC50 (5 XH, 4-1/2 IF), NC46 (4 IF, 4-1/2 XH)	6-5/8 IF	6-5/8 IF
Bit Box Options ¹	4-1/2 Reg, 4-1/2 IF Pin Down	4-1/2 Reg, 4-1/2 IF Pin Down	4-1/2 IF Pin Down	6-5/8 Reg, 7-5/8 Reg, 6-5/8 Reg Pin Down	6-5/8 Reg, 7-5/8 Reg
Powers Size Configuration RPG Flow Range	675 7/8 5.7 0.242 300-650	675 7/8 5.7 0.242 300-650	675 7/8 5.7 0.242 300-650	800 7/8 3.4 0.089 400-900	962 5/6 4.0 0.108 600-1200
	700 5/6 8.3 0.380 350-750	700 5/6 8.3 0.380 350-750	700 5/6 8.3 0.380 350-750	800 7/8 4.0 0.166 400-900	800 7/8 3.4 0.089 400-900
	700 5/6 9.5 0.344 450-750	700 5/6 9.5 0.344 450-750	700 5/6 9.5 0.344 450-750	825 7/8 6.2 0.156 400-900	800 7/8 4.0 0.166 400-900
	700 6/7 4.6 0.150 400-800	700 6/7 4.6 0.150 400-800	700 6/7 4.6 0.150 400-800	825 7/8 7.0 0.166 400-1000	825 7/8 7.0 0.166 400-1000
	700 6/7 10.1 0.400 300-800	700 6/7 10.1 0.400 300-800	700 6/7 10.1 0.400 300-800		
	700 6/7 11.1 0.400 300-800	700 6/7 11.1 0.400 300-800	700 6/7 11.1 0.400 300-800		
	700 6/7 12.1 0.400 300-800	700 6/7 12.1 0.400 300-800	700 6/7 12.1 0.400 300-800		
	700 ² 6/7 12.1 0.400 300-800	700 ² 6/7 12.1 0.400 300-800	700 ² 6/7 12.1 0.400 300-800		
	700 7/8 8.5 0.240 400-750	700 7/8 8.5 0.240 400-750	700 7/8 8.5 0.240 400-750		
	725 5/6 9.6 0.380 350-700	725 5/6 9.6 0.380 350-700	725 5/6 9.6 0.380 350-700		
	725 6/7 10.1 0.400 300-800	725 6/7 10.1 0.400 300-800	725 6/7 10.1 0.400 300-800		
	725 6/7 11.1 0.400 300-800	725 6/7 11.1 0.400 300-800	725 6/7 11.1 0.400 300-800		
	725 6/7 12.1 0.400 300-800	725 6/7 12.1 0.400 300-800	725 6/7 12.1 0.400 300-800		
	Fixed Bend Options	Straight, 150, 175, 183, 2.00, 2.12, 2.25, 2.38	Straight, 150, 175, 183, 2.00, 2.12, 2.25, 2.38	Straight	Straight, 150, 175, 183, 2.00, 2.12, 2.25, 2.38
Adjustable Bend Options	0.00 - 3.00	0.00 - 3.00	N/A	0.00 - 3.00	0.00 - 3.00
Stabilization Options	True Slick Integrated Integral Blade Stabilizer	True Slick Integrated Integral Blade Stabilizer	True Slick Integrated Integral Blade Stabilizer	True Slick Integrated Integral Blade Stabilizer Slick Sleeve Screw-On Stabilizer	Slick Sleeve Screw-On Stabilizer

¹other options are available on request

²DynaMic Fit

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