

PowerDrive Xceed

Ruggedized rotary steerable system

APPLICATIONS

- Extended-reach wells
- Openhole sidetracks and overgauge holes
- Dogleg assurance in soft and hard formations
- Directional drilling with bicenter bits

BENEFITS

- Advanced wellbore positioning
- Minimum wellbore dependency for steering

FEATURES

- Enclosed wear-resistant internal steering mechanism
- Enhanced downhole control for tangent sections
- Hydraulics optimization without pressure drop at the bit
- Six-axis inclination and azimuth measurements

PowerDrive Xceed* ruggedized RSS is part of the PowerDrive* RSS family of fully rotating steerable systems that minimize the risk of sticking. The entire family has a complete direction and inclination sensor package close to the bit for precise well placement and independently generates power for 3D steering and control.

In any drilling environment, the PowerDrive RSS family delivers the power required to place wells accurately with superior borehole quality while ensuring maximum drilling efficiency.

Efficient drilling and control in harsh settings

The PowerDrive Xceed RSS provides strength and agility in challenging, rugged, soft, or abrasive environments and drills extended-reach wells within rig pressure limits. Engineered for trajectory accuracy and reliability, its internal steering mechanism does not require pressure drop across the bit. It enables real-time well placement, keeping the wellbore in the target window.

Higher performance with enclosed steering mechanism

The RSS is designed with field-proven electronics and has a wear-resistant, totally enclosed internal steering mechanism. Its steering response is minimally influenced by the wellbore and hole gauge and its point-the-bit steering mechanism ensures performance in abrasive, soft, and hard formations.

Precise and optimized steerability

The PowerDrive Xceed RSS can predictably drill curves and openhole sidetracks to put wells in the best place in the reservoir. Hold-the-line closed-loop downhole control automatically corrects inclination and azimuth if deviation occurs, achieving TD in less time.



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Specifications		PowerDrive Xceed 675 RSS	PowerDrive Xceed 900 RSS
Mechanical	Nominal OD, in [mm]	6¾ [171.5]	9 [228.6]
	Overall length, ft [m]	25 [7.62]	28 [8.53]
	Dogleg severity (DLS) capability, °/100 ft [°/30 m] [†]	8 [8]	6.5 [6.5]
	Hole sizes, in [mm]	8¾–9¾ [212.7–250.8]	12–17½ [304.8–444.5]
	Bit speed, rpm	350	350
	Maximum weight on bit, lbf [N] [‡]	55,000 [244,652]	75,000 [333,617]
	Maximum torque on bit, ft.lbf [N.m] [§]	18,500 [25,082]	45,000 [61,011]
	Maximum overpull, lbf [N]	1,000,000 [4,448,222]	1,000,000 [4,448,222]
	Passthrough (DLS sliding), °	15	12
	Bit connection (box)	4½ Reg	6¾ or 7¾ Reg
Hydraulics ^{††}	Flow range, galUS/min [L/min] ^{††}	290–800 [1,097–3,028]	515–1,800 [1,949–6,813]
	Maximum mud density, lbm/galUS [kg/L]	24 [2.88]	24 [2.88]
	Maximum sand content, %	2	2
	Lost circulation material (LCM), lbm/bbl [kg/L] ^{§§}	50 [0.19]	50 [0.19]
	Acidity level, pH	9.5–12	9.5–12
	Oxygen, ppm	1	1
Pressure and temperature	Maximum temperature, degF [degC]	302 [150]	302 [150]
	Maximum pressure, psi [MPa]	20,000 [137.9]	20,000 [137.9]
Measurements ^{†††}	Inclination offset to tool bottom, ft [m]	14.55 [4.43]	16.30 [4.97]
	Azimuth offset to tool bottom, ft [m]	12.95 [3.95]	14.70 [4.48]
	Magnetic field cone of exclusion	4,000-nT radial field	4,000-nT radial field
Specifics	Automated loop	Azimuth and inclination	Azimuth and inclination
	Downlinking method	Flow	Flow

[†] Value dependent on application—bit, BHA, parameters, formation type, etc.

[‡] Maximum at 0-ft.lbf torque on bit; bit recommendations should be considered.

[§] Maximum at 0-lbf weight on bit.

^{††} Dependent on mud density.

^{†††} Special configuration available for silicate muds.

^{§§} Depends on the type of LCM.

^{†††} Sensor offsets and tool weight vary depending on hole size configuration.

Refer to the Schlumberger Shock and Vibration references for details regarding axial, lateral, and torsional limits of tools.

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