PowerV

Vertical Drilling Rotary Steerable System

APPLICATIONS

- Efficient vertical drilling in one run
- Rig sites with minimal or no directional drilling supervision
- Hard formations and formations with high dip angle

BENEFITS

- Automatically maintained vertical wellbore
- Optimized postdrilling operations and increased completions and lift equipment durability
- Reduced rigsite supervision
- Reduced lost-in-hole incidents
- Increased drilling efficiency
- Reaming, backreaming, and shoe drillout permitted

FEATURES

- Remotely monitored automatic steering control
- Functional without MWD tool systems
- Automatic downhole correctionof deviation
- Availability in PowerDrive vorteX* powered RSS configuration

PowerV* vertical drilling 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 VERTICAL DRILLING FROM SPUD TO TOTAL DEPTH

The PowerV RSS is the reliable and efficient solution for vertical drilling applications. It provides cost-efficient drilling while automatically and continuously maintaining a vertical wellbore. The fully rotating system improves hole cleaning efficiency and wellbore quality in vertical wells, reducing risk of costly correction runs. With the PowerV RSS, the potential for lost-in-hole incidents and mechanical and differential sticking is minimized. Its high rpm capacity makes it suitable for the PowerDrive vorteX RSS configuration.

WIDE OPERATING RANGE FOR ULTIMATE ADAPTABILITY

The PowerV RSS actively and automatically steers the well path downward while drilling, regardless of the azimuth of any inclination present. Once verticality is achieved, any tendency to build angle is automatically corrected downhole. The automatic steering control requires minimal supervision from surface and needs no MWD system to function. There is no need for dedicated rigsite supervision, lowering potential HSE risks. If direction and inclination monitoring is critical, an MWD tool can be added to the BHA.

The PowerV RSS can be adapted to run on almost any rig. It covers most hole sizes and is a perfect application for hard formation and formations with a high dip angle.

SPECIFICATIONS		PowerV 475 RSS	PowerV 675 RSS	PowerV 825 RSS	PowerV 900 RSS	PowerV 1100 RSS
Mechanical	Nominal OD, in	4 3/4	6 3/4	8 1/4	9	11
	Overall length, ft	13.65	13.47	13.84	13.84	15.22
	Hole sizes, in	5 1/2 - 6 3/4	7 7/8 - 9 7/8	10 5/8 - 11 5/8	12 - 18 1/2	20 - 28
	Bit speed, rpm	0 - 220	0 - 220	0 - 220	0 - 220	0 - 125
	Maximum weight on bit, lbf †	31,000	180,000	270,000	370,000	225,000
	Maximum torque on bit, ft.lbf ‡	9,000	18,500	45,000	45,000	70,000
	Maximum overpull, lbf	340,000	1,100,000	1,100,000	1,800,000	2,500,000
	Passthrough (DLS sliding), °	30	16	12	10	4
	Bit connection (box)	3 1/2 Reg	4 1/2 or 6 5/8 Reg	6 5/8 Reg	6 5/8 or 7 5/8 Reg	7 5/8 Reg
Hydraulics §§	Flow range, galUS/min §	170 - 310	210 - 970	280 - 2,000	280 - 2,000	280 - 2,000
	Maximum mud density, lbm/galUS	24	24	24	24	24
	Maximum sand content, %	1	1	1	1	1
	Lost circulation material (LCM), lbm/bbl ‡‡	35	50	50	50	50
	Acidity level, pH	9.5 - 12	9.5 - 12	9.5 - 12	9.5 - 12	9.5 - 12
	Oxygen, ppm	1	1	1	1	1
Pressure, temperature and shock	Maximum temperature, degF	302	302	302	302	302
	Maximum pressure, psi	20,000	20,000	20,000	20,000	20,000
	Maximum cumulative shock count, count	200,000 > 50 gn	200,000 > 50 gn	200,000 > 50 gn	200,000 > 50 gn	200,000 > 50 gn
	Maximum peak shock, gn	250	250	250	250	250
Mesurements §§§	Inclination offset to tool bottom, ft	6.76	7.13	7.60	7.70	9
	Azimuth offset to tool bottom, ft	8.86	9.33	9.80	9.90	11.20
	Azimuthal gamma ray	Four bin	Four bin	Four bin	Four bin	Four bin
	Average gamma ray	Yes	Yes	Yes	Yes	Yes
	Gamma ray offset to tool bottom, ft	5.86	6.33	6.80	6.90	8.20
	Vibration range (axial), gn	0 - 35	0 - 35	0 - 35	0 - 35	0 - 35
	Vibration range (radial), gn	0 - 75	0 - 75	0 - 75	0 - 75	0 - 75
	Shock range, gn	625	625	625	625	625
	Shock axis	Triaxial	Triaxial	Triaxial	Triaxial	Triaxial
	Magnetic field cone of exclusion	None	None	None	None	None
Specifics	Automated loop	Vertical	Vertical	Vertical	Vertical	Vertical

† Maximumat 0-ft.lbf torque on bit; bit recommendations should be considered.
‡ Maximumat 0-lbf weight on bit.
§ Dependent on mud density.
†† Special configuration available for silicate muds.
‡‡ DependsonthetypeofLCM.
§§ Sensor off sets and tool weight vary depending on hole size configuration.