

VectorEXAKT Vertical Rotary Steerable System

Our VectorEXAKT™ vertical rotary steerable system (RSS) is designed for high-performance vertical drilling. The VectorEXAKT system is set apart by its high rate of penetration, precise verticality control, and robust design. The RSS tool stays on course through continuous steering—when there is a deviation from vertical, the VectorEXAKT system will autonomously steer back on course. The VectorEXAKT system can also be run below a motor for performance drilling applications.

Operational Specifications

Series	400	600
Hole size	6 to 6¾ in.	8½ to 9⅞ in.
Max. operating torque	8,115 ft-lbf (11 kNm)	11,070 ft-lbf (15 kNm)
Max. WOB	15,750 lbf (70 kN)	44,962 lbf (200 kN)
Max. RPM	250 min ⁻¹	250 min ⁻¹
Max. flow rate	291 GPM (1,100 l/min)	650 GPM (2,000 l/min)
Max. temperature	257/302°F (125/150°C)	257/302°F (125/150°C)
Max. hydrostatic pressure	8,700 psi (600 bar)	8,700/20,000 psi (600/1,400 bar)
Mud compatibility	Oil-based mud/water-based mud	Oil-based mud/water-based mud
Max. mud sand content (by volume)	1%	1%

Rotary Connections

Top connection (end sub)	NC 38 box	NC 50 box
Bit box	3½ reg.	4½ reg.

Series	800	900
Hole size	12¼ to 13⅞ in.	14¾ to 17½ in.
Max. operating torque	22,140 ft-lbf (30 kNm)	22,140 ft-lbf (30 kNm)
Max. WOB	56,250 lbf (250 kN)	90,000 lbf (400 kN)
Max. RPM	250 min ⁻¹	250 min ⁻¹
Max. flow rate	1,058 GPM (4,000 l/min)	1,481 GPM (5,600 l/min)
Max. temperature	257/302°F (125/150°C)	257/302°F (125/150°C)
Max. hydrostatic pressure	8,700/20,000 psi (600/1,400 bar)	8,700/20,000 psi (600/1,400 bar)
Mud compatibility	Oil-based mud/water-based mud	Oil-based mud/water-based mud
Max. mud sand content (by volume)	1%	1%

Rotary Connections

Top connection (end sub)	NC 56 box	NC 56 box
Bit box	6⅝ reg.	7⅝ reg.

Components at Surface

Data receiving unit

Environmental Specifications

Vibration test of PCB

Axes X, Y, and Z (orthogonal)
Duration 4 hours per axis (continuous)

High-frequency test

Level 4.0-6.0g
Frequency 15 dB (1,000–10,000 Hz)
30 dB (10,000–100,000 Hz)

Low-frequency test

Level 20g RMS (random)
Frequency 10-500 Hz

Temperature test of PCB

Thermal soak

Temperature 125°C/150°C
Duration 120 hours (continuous)

Thermal cycling

Temperature profile 120 minutes @ -20°C
120 minutes @ 125°C
Temperature ramp 60 minutes (minimum)
Number of cycles 25

Shock test of RSS

Drop test

Axes X, Y, and Z (orthogonal)
Height of drop 18 in. (0.4572 m)
Number 10 drops per axis

Air hammer test

Axes X, Y, and Z (simultaneous)
Frequency 50–100 Hz
Duration 12 hours (continuous)

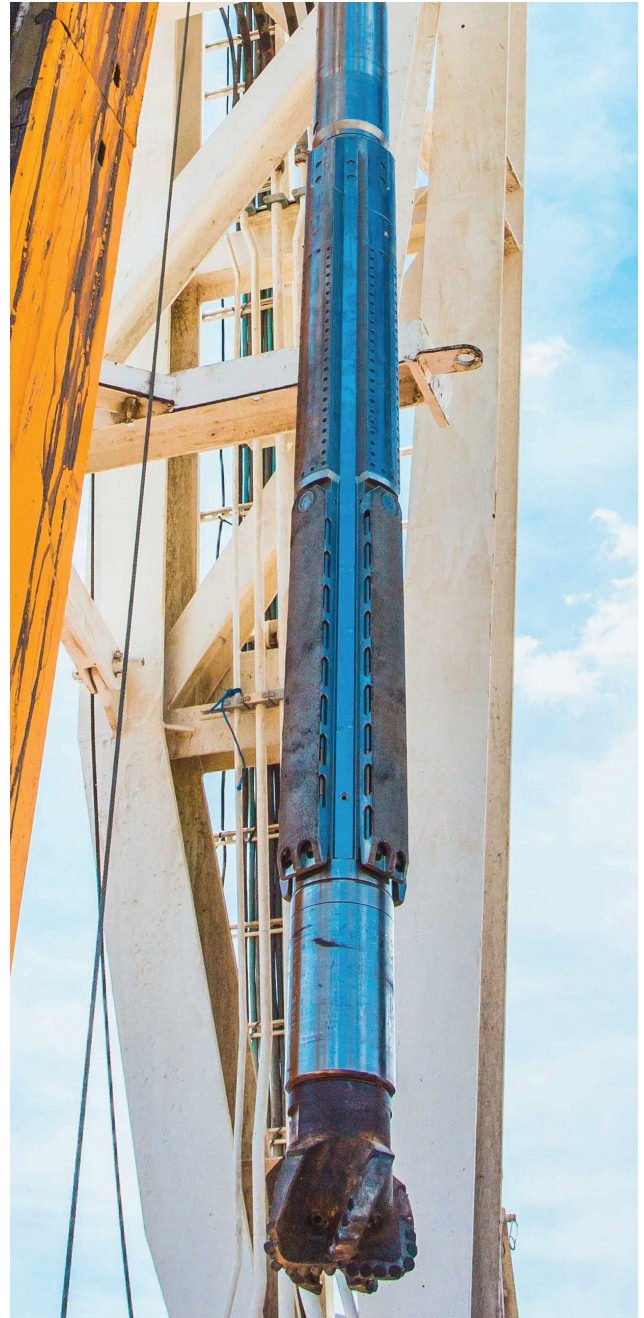
Pressure test of RSS-Tool

Pressure soak

Temperature of water 99°C (not boiling)
Pressure 600 bar/1,400 bar
Duration 72 hours (continuous)

Pressure cycling

Temperature of water 70°C
Pressure profile 1 bar for 5 minutes
14 bar for 30 minutes
600 bar for 30 minutes
Number of cycles 10



Specifications of MWD System

Inclination

Sensor X-, Y-, and Z-axis accelerometers
Accuracy ± 0.1°
Raw data to surface Gx, Gy, Gz
G_{tot} Quality check tolerance ± 0.005 g