

Scientific Drilling International's HALO high-performance rotary steerable system solves reliability and economic challenges while yielding more efficient, smoother directional wellbores throughout North America. Designed to complete vertical, curve and lateral sections in a single run, it helps avoid costly trips and improves rate of penetration (ROP), in even the harshest environments.

The system maximizes wellbore exposure in the target zone by drilling curve sections with build rate up to 15°/100 ft, while its 3D advanced directional control system delivers unparalleled lateral placement. It can be paired with conventional mud motors and operates at a maximum bit speed, up to 350 RPM; thus, maximizing performance and reducing rig time.

Data is transmitted to surface from the system's high-speed mud pulse telemetry. The HALO system allows precise on-the-fly directional control without interrupting the drilling process.

Consisting of an integrated steering unit and MWD survey package, with azimuthal gamma ray geosteering and pressure-while-drilling capabilities, the HALO system is fully assembled and qualified prior to delivery to the rig site. This minimizes BHA assembly time and mitigates associated HSE risks.

For more information on improving your drilling efficiency [while staying on target] contact your Scientific Drilling sales representative or visit: http://scientificdrilling.com/halo-rss

APPLICATIONS

- Performance drilling
- Extended-reach wells

BENEFITS

- High RPM limit Improves drilling performance
- Build rate capability (up to 15°/100 ft) maximizes reservoir exposure in the target zone
- Enhances drilling efficiency due to superior automated lateral/3D advanced directional control functionality
- Reduces handling risk and invisible time through an integrated system design

FEATURES

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- Magnetic referenced kickoff from vertical
- Compatible with Scientific Drilling's TiTAN22 high-performance mud motors, as well as third-party motors
- Real-time azimuthal gamma ray measurements and near-bit navigation package provides continuous feedback
 - Real-time continuous equivalent circulating density (ECD) measurements enable continuous hole cleaning monitoring
 - Downlink commands can be transmitted during drilling, while pulsing MWD data to surface
 - Real-time vibration readings: lateral, axial and stick-slip

GENERAL SPECIFICATIONS		NEAR-BIT INCLINATION
TOOL SIZE	6 ¼ in. (nominal)	SENSOR TYPE
BOREHOLE SIZE	7 $^7/_8$ in. to 8 $^3/_4$ in. (9 $^7/_8$ in. special configuration)	RANGE CONTINUOUS ROTATING
MAXIMUM STEERING RATE	15°/100 ft (12°/100 ft recommended for well planning)	ACCURACY
BHA LENGTH	35 ft, 6 in.	STATIC ACCURACY
BHA WEIGHT	2,822 lb	
TOP CONNECTION	NC 50 Box or NC 46 Box	
BOTTOM CONNECTION	4 ¹ / ₂ in. API Reg Box (7 ⁷ / ₈ to 8 ³ / ₄ in. HS) 6 ⁵ / ₈ in. API Reg Box (9 ⁷ / ₈ in. HS)	
OPERATING SPECIFICATIONS	& LIMITS	
FLOW RANGE	400 to 700 gpm	
MAXIMUM WOB	60,000 lb	
MAX DRILLING TORQUE	15,100 ft-lb (at bit)	
MAX TORQUE TO FAILURE	29,800 ft-lb (at bit)	
MAX PASS-THROUGH DOGLEG	Rotating 15°/100 ft Sliding 30°/100 ft	
MAXIMUM TOOL ROTATION	350 rpm	
LCM	50 ppb medium fibrous	
MAX OPERATING TEMPERATURE	302°F (150°C)	
MAX HYDROSTATIC PRESSURE	20,000 psi	
MAX SAND CONTENT	1% (recommended volume <0.5%)	
VIBRATION SPECIFICATIONS		
AXIAL	4 g RMS for 3hr; 6 g RMS for 0.5hrs	
LATERAL	5 g RMS for 3hr; 7.5 g RMS for 0.5hrs	
STICK-SLIP DETECTED (0.5HR)	150% for 5hr, 200% or neg. rpm	
MAGNETIC KICK OFF FROM VE	RTICAL	
SENSOR TYPE	Magnetometer	
CONTINUOUS ROTATING TF	+/-5° @ 10° below DIP angle +/-10° @ 5°-10° below DIP angle	
AZIMUTHAL GAMMA RAY		
SENSOR TYPE	Nal scintillation crystal	
RANGE	0 to 1,000 API	
ACCURACY	+/- 2.8 API @ 100 API and 60 ft/hr	
AZIMUTHAL MEASUREMENT	4 sectors RT; 8 sectors memory	
ANNULAR PRESSURE		
SENSOR TYPE	Absolute pressure measurement	
RANGE	+/- 0.15%FS	
ACCURACY	0 to 20,000 psi	
DIRECTIONAL SURVEY		
SENSOR TYPE	Triaxial accelerometer & magnetometer	
INCLINATION RANGE	0 to 180°	
AZIMUTH RANGE	0 to 360°	
INCLINATION ACCURACY	+/- 0.15° at all angles	
AZIMUTH ACCURACY	+/-0.3° > 3°	
DYNAMICS		
MEASUREMENTS	Axial vibration, lateral vibration, RPM, stick-slip severity	1.111111
VIBRATION RANGE	0 to 25 g RMS; DC 0 to 120 Hz	
RPM RANGE	0 to 1,000 rpm	

1.800.514.8949

Top Connection (35.5 ft)

Mud Pulser

MWD Survey Package (21.0 ft)

> Azimuthal Gamma (15.4 ft)

Rotating Stabilizer

Near-Bit Navigation Package (5.9 ft)

> Annular Pressure Sensor (2.3 ft)

Steering Pads

> Bit Box (0.0 ft)

(32.5 ft)

Accelerometers 0 to 180°

0 to 90° +/- 0.3°

5 to 30° +/- 0.8°

30 to 90° +/-0.5°

*Specifications are subject to change without notice

Scientific Drilling

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