



TrendLineSM Gyro-while-Drilling Service

Weatherford's *TrendLine* service provides advanced collision avoidance and real-time knowledge of wellbore position, enhancing performance and safety in magnetic environments.

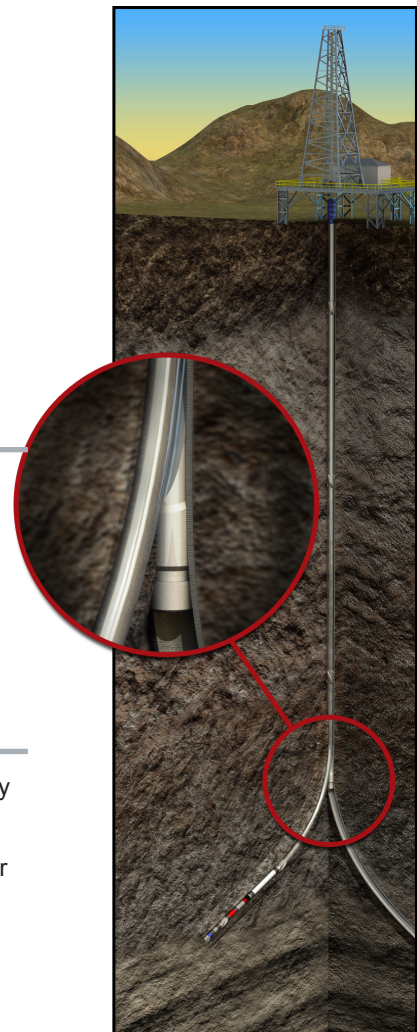
Weatherford's directional drilling services use Gyrodata's Gyro-Guide™ precision wellbore placement technology in environments experiencing excessive bottomhole assembly movement, commonly seen on floating structures and in riserless applications. The shortest gyro surveying time in the industry reduces rig time and potential stuck pipe situations. Gyrodata technology provides continuous toolface data while drilling and full surveys when required.

Applications

- High-temperature gyro 302°F (150°C)
- Magnetic environments
- Offshore and riserless applications with excessive bottomhole movement
- Whipstock orientation and casing drillout
- Steam-assisted gravity drainage (SAGD)

Features, Advantages and Benefits

- MWD/LWD telemetry system enables real-time communication, saving time by eliminating the need for wireline services.
- System enables collision avoidance in magnetic environments, providing safer operations.
- System reduces sensor distance for survey data, eliminating the need for magnetic spacing.



Depiction of a sidetracking operation off a whipstock using the *TrendLine* gyro-while-drilling service in a magnetic environment.

Gyro-Guide is a trademark of Gyrodata, Inc.



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Specifications

Gyro Sensor

Size (in.)	4-3/4	6-3/4	8-1/4	9-1/2
Probe diameter (in./mm)		1.875 46.99		
Tool length (ft/m)		23.2 7.07		
Pressure rating (psi/kPa)		20,000 137,900		
Temperature rating (°F/°C)		302 150		
Weight (lb/kg)		175 79		
Inclination accuracy		±0.1°		
Azimuth accuracy		±1°		
Toolface accuracy		±1°		

TrendLine Tubulars

Size (in.)	6-3/4	8-1/4	9-1/2
Maximum OD (in., mm)	6.75 172	8.25 210	9.50 241
Length (ft, m)	3.00 0.91	30.08 w/crossover 9.17 w/crossover	3.00 0.91
Top connection	4-1/2 IF box	5-1/2 IF box	7-5/8 API reg box
Bottom connection	4-1/2 IF pin	6-5/8 API reg pin	7-5/8 API reg pin
Make-up torque top (ft-lb, N•m)	30,000 to 33,000 40,670 to 44,740	53,000 to 56,000 71,870 to 75,900	75,000 to 78,000 101,700 to 105,750
Make-up torque bottom (ft-lb, N•m)	30,000 to 33,000 40,670 to 44,740	56,000 to 59,000 75,900 to 79,990	75,000 to 78,000 101,700 to 105,750
Maximum DLS, rotating (°/100 ft/°/30 m)	8	7	6
Maximum DLS, sliding (°/100 ft/°/30 m)	16	14	12
Maximum sand content (%)	*	*	*
Maximum flow rate (gpm, Lpm)	*	*	*
Maximum operating pressure (psi, MPa)	*	*	*
Maximum temperature (°F, °C)	*	*	*

* Measurements are dependent on gyro specifications. For LWD and MWD specifications, refer to the appropriate TSS.