PRODUCT SPEC SHEET

GYROGUIDE GWD90™

All-Attitude High Accuracy Gyro While Drilling

GENERAL SPECS

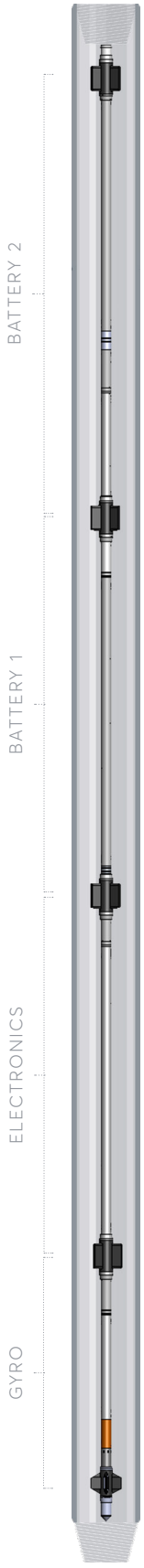
Probe Length	19.14-24.36 ft	5.83-7.42 m
Probe OD (standard probe)	1.875 in	47.625 mm
Probe Weight	170 lbs	77 kg
Probe Pressure Rating	20,000 psi	151.7 MPa
Probe Temperature Range (standard probe)	32° - 300°F	0° - 150°C
Vibration	8g RMS (all axis)	
Survey Accuracy*	Wellbore Dependent	
Host Collar Size #	4.75 in - 9.5 in	

* ISCWSA / SPE WTS compliant error ellipse reports are available upon request for specific well profiles
# Available collar sizes dependent on MWD / Directional provider

SENSOR SPECS

Sensor Type	Stationary north finding mass rate gyroscope	
Running Mode	Gyrocompass, Continuous Toolface	
Measurement	Range	Accuracy
Inclination	0 - 180°	± 0.05°
Azimuth	0 - 360°	± 0.1°
Tool Face	0 - 360°	± 0.1°
Gravity Tool Face	-180° - 180°	± 1°

* Operating Time will vary based on tool configuration



Gyrodata's gyro while drilling GyroGuide GWD90 service provide all attitude high accuracy rate-gyroscopic surveys in real-time as drilling progresses. This modular gyro while drilling tool is combined with a host measurment while drilling (MWD) & telemetry system, and provides rate-gyroscopic surveys in vertical to horizontal applications.

DESIGN + PERFORMANCE

- Rate gyro accuracy assures precise wellbore guidance for collision avoidance and trajectory placement
- Provides continuous inclination and tool face from vertical while sliding, and full surveys on demand
- Unaffected by magnetic interference, the sensors can run closer to the bit in the MWD string by eliminating the need for non-magnetic spacing collars for the gyro sensor
- Eliminates the need to use wireline gyros to orient or steer the drilling assemblies, which saves considerable rig time and provides for safer operations
- Memory multishot capability as the BHA is tripped out of hole
- Utilizes CAP data processing; corrects g-sensitive errors in real-time
- Transparent quality control; gravity, full earth rate and latitude
- No East/West cautionary zones
- The tool can be run with the most commonly available MWD systems

MARKET + APPLICATIONS

- Vertical, Directional & Horizontal Drilling
- Multi-Well Pad Drilling
- Offshore & Riserless Drilling
- Onshore Drilling
- Batch Well Setting
- High Angle Drilling
- Gross Error Detection / Survey Validation
- Definitive Wellbore Placement
- Ellipse Of Uncertainty Reduction
- Areas of Magnetic Interference
- Collision Avoidance
- Side-Tracking - Horizontal
- Relief / Intervention Well
- Infill Drilling
- RSS Drilling
- Casing While Drilling

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