Compact[™] Borehole Navigation Tool

Delivers precise borehole navigation

Applications

- Determining borehole trajectory
- Determining total vertical depth
- · Applying speed corrections to formation evaluation data

Features and Benefits

- Robust three-axis magnetometers and accelerometers provide precise and reliable tool-string orientation measurements, even in extreme borehole and logging conditions.
- The unique profile of the tool facilitates deployment in wireline or memory mode to mitigate the risk of bridging events and reduce nonproductive time.

Tool Description

The Weatherford Compact borehole navigation (MBN) tool measures orthogonal components of the earth's magnetic and gravitational fields along a wellbore. These measurements are used to compute instantaneous tilt and azimuth of a tool string, which enables derivation of the well trajectory below the casing shoe. Results are presented as a table of measured depths (MD) and true vertical depths (TVD), supported by a polar plot and vertical section plots showing north-south and east-west projections.

When the Z-axis accelerometer is sampled at a higher rate, instantaneous speed of the tool string can be determined. When the MBN tool is run as part of a Compact memory logging (CML) service, the information can be used to fine-tune and correct irregular tool movements.

MBN data is also used to confirm the rotational position of other tools in a measurement string; for example, when auxiliary equipment, such as a downward-pointing density shoe, is used to achieve a particular orientation in a horizontal well.



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$\textbf{Compact}^{\scriptscriptstyle{\mathsf{M}}} \textbf{ Borehole Navigation Tool}$

Specifications

Measurement

Data	Tilt, azimuth
Logging speed	1,800 to 3,600 ft/hr (9 to 18 m/min)
Measurement range	Tilt: 0 to 180°
Vertical resolution	1.0 in. (25.4 mm)
Accuracy	Tilt: ±0.1° Azimuth: ±5°
Depth of investigation	Borehole measurement
Borehole fluids	WBM, OBM, salt, air

Mechanical

2.25 in. (57 mm)	
11.81 ft (3.60 m)	
71 lb (32 kg)	
320°F (160°C)	
15,000 psi (103 MPa)	
18 in. (457 mm)	
2.8 in. (70 mm)	



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