

### Wireline Services

Open Hole Auxiliary

# Compact<sup>™</sup> Borehole Navigation (MBN) Tool

Weatherford's *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, enabling 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 run as part of a Compact<sup>SM</sup> memory logging (CML) service, the information can be used to fine-tune MDs and to correct any 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.

# **Applications**

- Determining borehole trajectory
- Determining TVD
- Applying speed corrections to formation evaluation data

# Features, Advantages and Benefits

 The robust three-axis magnetometers and accelerometers provide precise and reliable tool-string orientation measurements, even in extreme borehole and logging conditions.





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### Log Presentation



# **Specifications**

### Measurement specifications

Data	Tilt, azimuth	
Logging speed	1,800 ft/hr (550 m/hr)	
Measurement range	Tilt: 0 to 180° Azimuth: 0 to 360°	
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	r

#### Mechanical specifications

Maximum outer diameter	2.25 in. (57 mm)
Length	11.81 ft (3.60 m)
Weight (in air)	71 lb (32 kg)
Maximum temperature	300°F (150°C)
Maximum pressure	15 kpsi (103 MPa)
Maximum borehole diameter	15.70 in. (400 mm)
Minimum borehole diameter	2.80 in. (70 mm)

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