

**Applications**

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

**Features and Benefits**

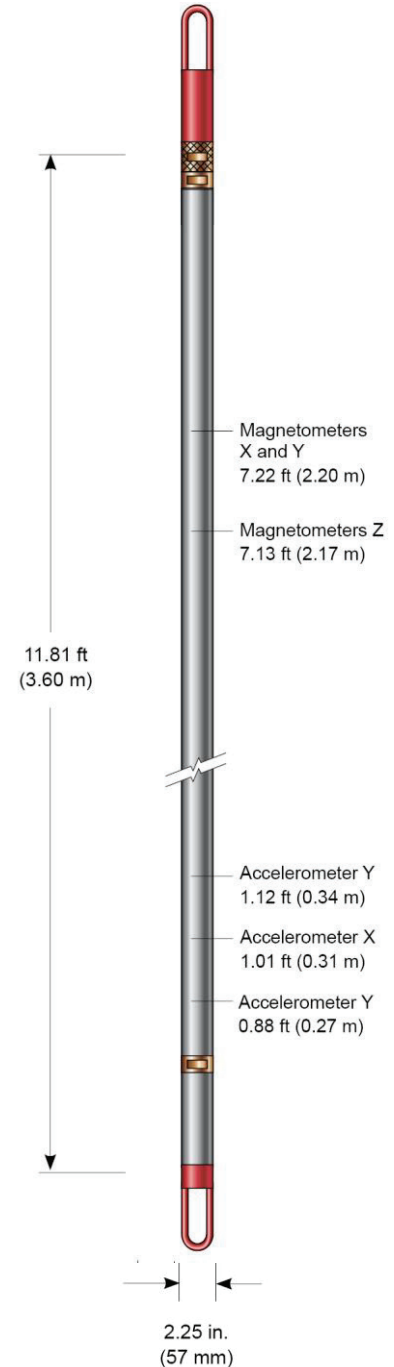
- Robust three-axis magnetometers and accelerometers provide precise and reliable tool-string orientation measurements, even in extreme borehole and logging conditions.
- The tool’s unique profile facilitates deployment in wireline or memory mode to mitigate the risk of bridging events and reduce nonproductive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

**Tool Description**

The 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 tool string, which enables derivation of the well trajectory below the casing shoe. Results are presented as a table of measure 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, the tool string’s instantaneous speed 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 download-pointing density shoe, is used to achieve a particular orientation in a horizontal well.



The Compact borehole navigation (MBN) tool provides precise and reliable tool-string orientation measurements.

**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°
Depth of investigation	Borehole measurement
Borehole fluids	WBB, OBM, Salt, Air

**Mechanical**

Maximum outer diameter	2.25 in. (57 mm)
Length	11.81 ft (3.60 m)
Weight (air)	71 lb (32 kg)
Maximum temperature	320° F (160° C)
Maximum pressure	15,000 psi (103 MPa)
Maximum borehole diameter	18 in. (457 mm)
Minimum borehole diameter	2.80 in. (70 mm)



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