# 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

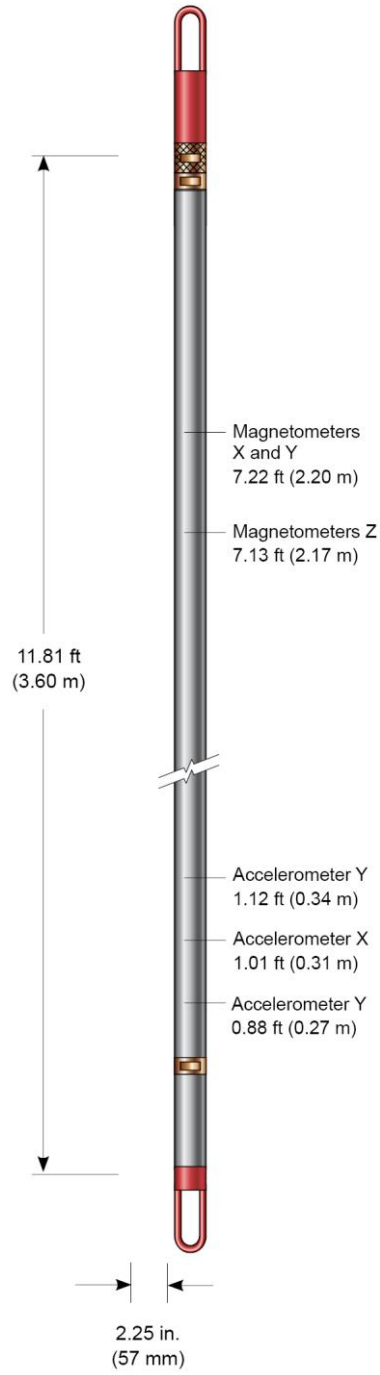
- Robust three-axis magnetometers and accelerometers provide precise and reliable tool-string orientation measurements, even in extreme borehole and logging conditions.
- The unique profile of the tool facilitates deployment in wireline or memory mode to mitigate the risk of bridging events and reduce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




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

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## 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°<br>Azimuth: ±5° |
| Depth of investigation | Borehole measurement |
| Borehole fluids | WBM, 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 | 2.8 in. (70 mm) |