

Bore and Annular Pressure Sensor

Measures downhole pressure and temperature during drilling, wiping, or tripping out of hole, and proactively identifies potential drilling problems

Applications

- Challenging drilling environments in which a narrow window exists between pore pressure and formation fracture pressure
- Drilling environments with or without mud returns

Features and Benefits

- The bore and annular pressure sensor monitors hole cleaning and cuttings transport, and provides accurate measurements of equivalent circulating density (ECD) that are critical in maintaining hole integrity.
- Accurate leak-off and formation-integrity test information improves drilling efficiency and increases the potential to drill farther without running casing, which saves time and money.

Tool Description

The Weatherford bore and annular pressure sensor is an integral part of the hostile-environment-logging (HEL) measurement-while-drilling (MWD) system. The sensor uses highly accurate quartz transducers to monitor downhole well conditions for early indications of drilling problems. It measures bore and annular pressure and downhole temperature during drilling, wiping, or tripping out of hole.

Data from the sensor can be presented in pressure units or ECD, and can be plotted versus depth or time for optimizing hole cleaning, controlling surge and swab, and minimizing lost circulation.

In underbalanced applications or in holes with no mud returns, the sensor can be run with the EMPulse MWD system for logging in hostile environments. Quartz gauges measure pressure within ± 7.5 psi (0.052 MPa) at 1-psi (0.069-MPa) resolution for an accurate measurement of ECD.



Part of the HEL MWD system, the Weatherford bore and annular pressure sensor uses quartz transducers to measure downhole temperature and pressure within ± 7.5 psi (0.052 MPa).



Bore and Annular Pressure

Specifications

Size	4-3/4 in. (120.65 mm)	6-3/4 in. (171.45 mm)	8 in. (203.20 mm)	8-1/4 in. (209.55 mm)	9-1/2 in. (241.30 mm)
Transducer type	Quartz crystal				
Resolution	1 psi (0.069 MPa)				
Accuracy	±7.5 psi (0.052 MPa)				
Repeatability	±3 psi (0.021 MPa)				
Measurement range	0 to 30,000 psi (0 to 206.843 MPa)			0 to 25,000 psi (0 to 172.369 MPa)	
Measure point from bottom of sensor	10.6 ft (3.231 m)				

* To review specifications for the HEL MWD system, refer to Technical Specification Sheet 2966.

