

The Quartz Pressure and Temperature Tool (QPT) has been designed to minimize the tool length. The borehole pressure is measured by a quartz crystal that has access to borehole fluids through a port. The borehole temperature is measured by a fast response platinum probe fitted at the bottom of the tool.

DESCRIPTION

The quartz pressure sensor has one large and two small quartz crystals. The large shaped crystal, with access to the borehole fluids, changes its resonant frequency with the applied pressure and temperature. To compensate for the changes associated with the temperature, one of the smaller shaped crystals is used as a base for the temperature compensation. Using the compensated data and a calibration, supplied with the gauge, an accurate and high resolution pressure reading is available over the wide measurement range.

Although the temperature is measured in the smaller shaped crystal, it can't be used as a wellbore temperature since the crystal is located inside the tool and doesn't respond fast enough to be considered as an accurate measurement.

The temperature portion of this tool is used to measure the borehole fluids temperature. The sensor is manufactured as a very thin platinum wire acting as an electrical resistance. This wire is encased in a needle type container. The size and design of this device makes it very stable, accurate and able to produce a fast temperature response.

In general, the temperature of the wellbore fluids is highly influenced by the geothermal temperature in addition to other effects associated with the convection of temperature from fluids moving near the wellbore.



APPLICATIONS

- Draw Down and Build Up Pressure Transient Analysis
- Downhole Pressure and Temperature Gradient Measurement
- Location of leaks
- Location of Fluid Sources and Sinks
- Location of channels

SPECIFICATIONS

DHT – Down Hole Telemetry	
General Specifications	
Maximum Pressure	15,000 PSI (100 MPa)
Maximum Temperature	350 °F (177 °C)
Diameter	1-3/8 Inches (35 mm)
Length	18 Inches (45.72 cm)
Maximum Logging Speed	150 Ft./min
Hardware Features	
Pressure Sensor Type	Quartz Crystals
Temperature Sensor Type	Platinum Resistance
Pressure Range	Up to 15,000 PSI
Pressure Resolution	0.00006% FS
Pressure Accuracy	0.024% FS
Temperature Range	-40 °C to 177 °C
Temperature Resolution	0.01 °C
Temperature Accuracy	±1 °C
Manufacturer	Spartek Systems