SureSENS QPT ELITE permanent downhole gauge

Obtain reliable, fault-tolerant data in HP/HT environments

The **SureSENS™ QPT ELITE gauge** for permanent downhole installations, from Baker Hughes, measures static and dynamic pressures and temperatures while introducing a step change in reliability and accuracy. The gauge is qualified for operation at pressures less than 35,000 psi (2414 bar) and temperatures up to 225°C (437°F).

The static pressure information obtained can be used to determine production performance, calculate reserves, and provide input to reservoir simulations. The dynamic pressure data can help determine reservoir characteristics and optimize production rates.

The SureSENS QPT ELITE gauge includes the new ELITE electronics package, built upon our industry leading STAR hybrid electronic package design. The ELITE electronics package incorporates an application-specific integrated circuit (ASIC), providing a new level of reliability to the industry.

Baker Hughes provides three configuration options—a single, dual, and triple gauge.

- The single-gauge configuration is an economical option that will also permit the smallest possible running diameter for a streamlined, slim-hole gauge carrier.
- A dual-gauge configuration provides isolated operational redundancy of the electronics and transducer at any given installation point. Each gauge in a dual package operates individually, providing independent measurements for data redundancy and integrity verification.
- The triple gauge option can offer redundancy or be ported to record three independent pressure measurements. The shorter carrier for a side-by-side triple-gauge assembly also retains a slim hole running outside diameter.

The SureSENS QPT ELITE gauge is highly robust, ensuring mechanical integrity by deep-penetration and high-vacuum, electron-beam fusion welds, without the need for filler material. Only two fittings—the pressure port and the tubing encapsulated conductor (TEC)—are required to interface the gauge with the carrier. The gauge pressure interface connection to the carrier can be externally tested in the direction in which it will experience pressure, eliminating the need for an

Applications

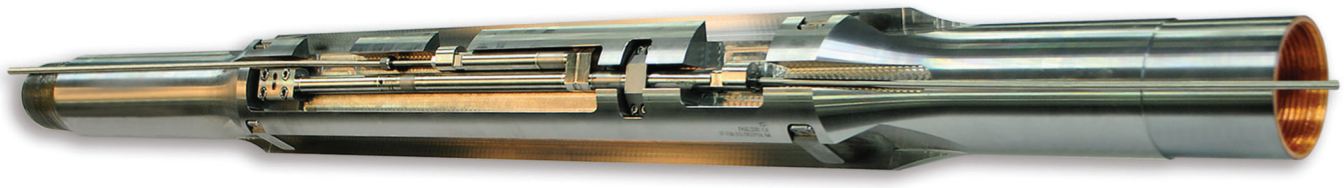
- Single or multiple gauge systems
- Bottomhole pressures less than 35,000 psi and bottomhole temperatures up to 225°C

Benefits

- Provides superior reliability in demanding HP/HT conditions
- Deploys multiple gauge combinations on a single standardized carrier
- Eliminates the need for additional splices, increases reliability, and reduces installation time through unique construction configurations with fewer connections
- Deploys multiple gauges, flowmeters, and valve positions to provide redundant readings
- Serves as platform for future developments
- Derives finest P/T measurement resolution attainable

internal pressure test tool. The TEC's primary seal is a dual metal-to-metal pressure-testable interface, and the mechanical package is completely integrated into the gauge assembly, which eliminates the requirement for external Y-block components.

Contact your Baker Hughes representative today to learn more about how our new SureSENS QPT ELITE downhole gauge can obtain reliable, fault tolerant pressure, and temperature sensing.



Specifications						
Length	24 in. to 25.5 in. (60.96 cm to 64.77 cm)					
Diameter	0.75 in. to 2.25 in. (19.05 mm to 57.15 mm)					
Seals	Metallic seals and EB welds					
Transducer	Shear mode quartz					
Transducer options	10,000 psi (689.5 bar)	16,000 psi (1103.2 bar)	20,000 psi (1379.0 bar)	25,000 psi (1723.6 bar)	30,000 psi (2068.4 bar)	35,000 psi (2413.7 bar)
Material	Inconel 718		MP35N			
Pressure range	15 psi to 11,000 psi (1 bar to 758.4 bar)	15 psi to 18,000 psi (1 bar to 1241.1 bar)	15 psi to 23,500 psi (1 bar to 1620.3 bar)	15 psi to 28,000 psi (1 bar to 1930.5 bar)	15 psi to 33,000 psi (1 bar to 2275.3 bar)	15 psi to 37,500 psi (1 bar to 2585.5 bar)
Temperature rating (operating)	14°F to 302°F (-10°C to 150°C)	14°F to 392°F (-10°C to 200°C)				14°F to 437°F (-10°F to 225°C)
Storage temperature	-40°F to 302°F (-40°C to 150°C)					
Temperature shock	5.4°F (3°C) per minute					
Vibration	>10 G, 10 Hz-2 kHz					
Shock	500 G					
Pressure measurement range (calibrated)	200 psi to 10,000 psi (13.8 bar to 689.5 bar)	200 psi to 16,000 psi (13.8bar to 1103.2 bar)	200 psi to 20,000 psi (13.8 bar to 1379.0 bar)	200 psi to 25,000 psi (13.8 bar to 1723.6 bar)	200 psi to 30,000 psi (13.8 bar to 2068.4 bar)	200 psi to 35,000 psi (13.8 bar to 2413.7 bar)
Pressure accuracy	+-0.015% 1.5 psi at full scale	+-0.02% 3.2 psi at full scale	+-0.02% 4.0 psi at full scale	+-0.02% 5.0 psi at full scale	+-0.025% 7.0 psi at full scale	+ -0.03% 8.75 psi at full scale
Pressure resolution	0.0001 psi					
Pressure stability	0.02% full scale, 2.0 psi/year	+-0.02% full scale, 3.2 psi/year	+-0.02% full scale, 4.0 psi/year	+-0.02% full scale, 5.0 psi/year	+-0.02% full scale, 7.0 psi/year	+ -0.03% full scale, 21 psi/year
Temperature measurement range (calibrated)	77°F to 302°F (25°C to 150°C)	77°F to 437°F (25°C to 225°C)				
Temperature accuracy	0.27°F (0.15°C)					
Temperature resolution	0.0001°F					
Temperature stability	0.018°F (<0.01°C) per year					
Maximum sample rate/second	>16					
Number of gauges support/TEC	Multiple (greater than 32)					
Cable distance transmission	50,000 ft (15,240 m)					

Baker Hughes

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