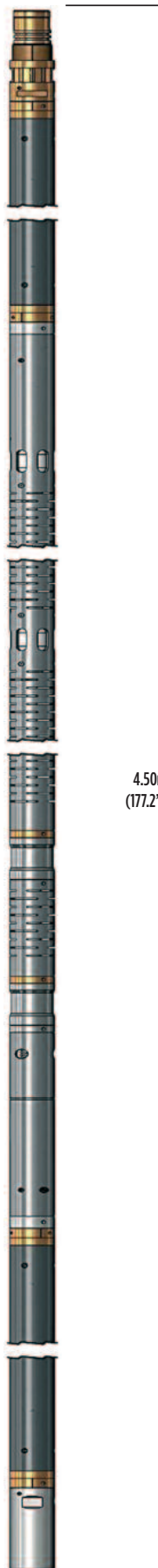


Compensated Sonic/CBL (GSC)



Compensated Sonic/CBL Module

The Compensated Sonic/CBL module provides multi-spacing digital acoustic-velocity (formation-slowness) measurements with high vertical resolution.

Full-waveform recording and CBL measurements are also available. The tool can be stacked with other tools.

Principle of Measurement:

Two piezoelectric transmitters stimulated by high-voltage pulses radiate high-frequency acoustic waves through the borehole fluid and formation to the receiver pair. An accurate quartz clock measures the arrival time of the first compressional wave at each receiver from each transmitter firing. The data is automatically processed to remove the influence of the borehole fluid path, tool tilt and caving (depth-derived borehole compensation). The attenuation of the first arrival is related to the bond quality and the strength of the cement, giving a Cement Bond Log (CBL).

SPECIFICATION:

Features

- High-energy transmitters for maximum penetration
- Two monopole receivers and two monopole transmitters
- Depth-derived borehole compensation for borehole tilt and caving
- Amplitude and waveform data in CBL mode with industry standard 3' and 5' spacings
- Oil-filled mandrel with pressure compensation

Measurements

- Formation velocity (slowness)
- Tx-Rx spacings: 3ft, 4ft, 5ft, 6ft
- Compensated DT from each receiver pair
- Cement Bond Log (CBL) amplitude and waveform

Applications

Open Hole:

- Lithology
- Porosity
- Rock strength and elasticity
- Fracture indication
- Time to depth correlation for seismic

Cased Hole:

- Location of poor or missing cement behind casing

Operating Conditions

- Borehole type: water/mud filled; open/cased
- Ø: 102mm (4") to 305mm (12")

Specifications

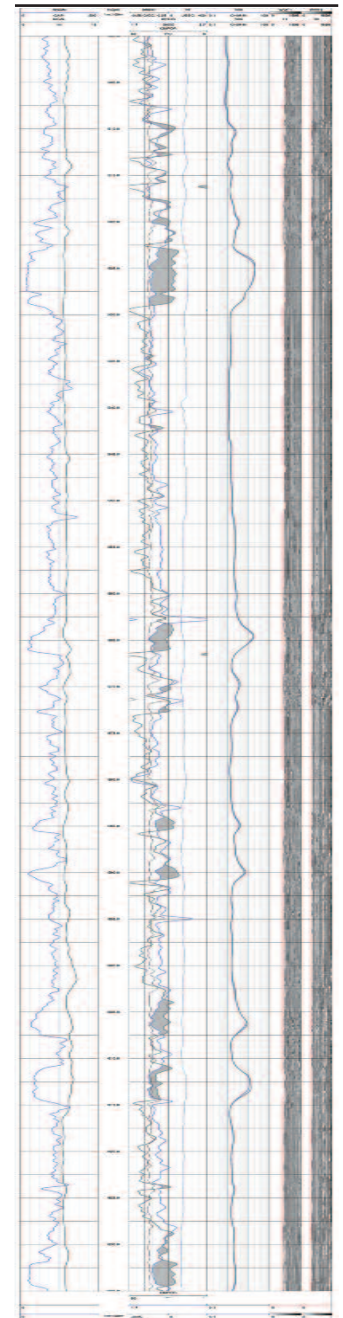
- Diameter: 63mm (2.5")
- Length: 4.50m (177.2")
- Weight: 50kg (110lb)
- Max. temperature: 125°C
- Max. pressure: 86MPa (12,500psi)
- Number of piezoelectric transmitters and offsets: 2 (4.75ft, 5.75ft)
- Frequency of emission: 20 kHz
- Number of receivers and offsets: 2 (8.75ft, 10.75ft)
- Range: 40 - 240 µs/ft (130-787 µs/m)
- Resolution: 0.25 µs/ft
- Vertical Resolution: 1ft or 2ft

Part Numbers

- 1013889 Compensated Sonic/CBL module

Accessories:

- 1014803 6-arm centraliser (2 required)



Example of logging data