

Cement Bond Log Tool

Titan/Tekco Industries

CBL/GR/CCL

Measurement Parameters & Applications:

The Sonic tool uses a transducer to transmit an acoustic wave through the well fluid, steel pipe, cement sheath and surrounding formation. At distances of three and five feet from the transmitter are receivers, which measure the refracted acoustic wave. The near receiver waveform is recorded, rotated 90 degrees and shaded to display a striped plot. This plot is referred to as a "variable density log" or VDL, which indicates the degree of amplitude from the signal baseline and travel time from the transmitter. Amplitude signals are indicative of the degree of cement bonding. High amplitudes indicate "free pipe" or marginal annular cement. The difference in the compressional arrivals from the five and three foot receivers can be calculated as Travel Time or Delta T, an inverse velocity measurement scaled in micro-seconds/foot. Travel Time can be used to distinguish between free pipe and formation signals also.

Operating Constraints:

Maximum pressure 10,000 PSI
Operation temperature range 0 to 138 degrees C, 32 to 280 degrees F
Borehole constraints..... Steel-Casing, Fluid filled

Dimensions:

Length..... 228 in., 579 cm
Diameter 2.75 in., 7.0 cm
Weight 200 lbs, 91 kg

Transmitter & Receivers:

Number of transmitters..... 1
Transmitter frequency bands..... 20 KHz
Number of Receivers..... 2
Transmitter to Receiver Spacing..... 3 & 5 ft.

Natural Gamma Ray Detector:

Sodium Iodide (NaI)..... 1.25 X 4 in., 3.81 X 10.16 cm. (Diameter X Length)
Gamma Ray range..... 0 – 10,000 API

Casing Collar Locator:

Moving Magnet & Coil.....