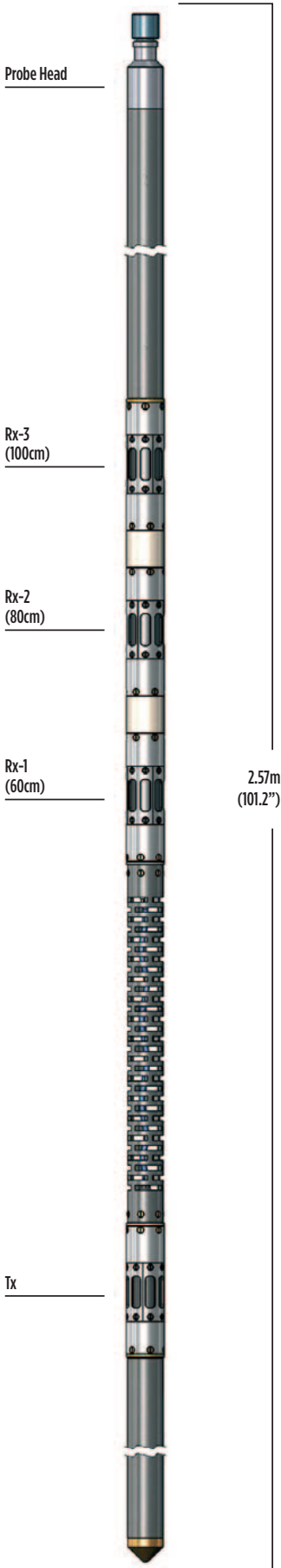


# PROBES

## FULL WAVEFORM TRIPLE SONIC



Full Waveform Triple Sonic Probe

The Full Waveform Triple Sonic probe is a highly compact slimhole tool designed specifically for geotechnical and mining applications.

The probe acquires transit-time and full-waveform data simultaneously from a single transmitter and three receivers.

### Principle of Measurement:

The piezoelectric transmitter is stimulated by a high-voltage pulse and radiates a high-frequency acoustic wave through the borehole fluid and formation to each receiver. An accurate quartz clock measures the first arrival transit time.

**Formation Velocity:** The probe measures the time of the first arrival at each receiver. The difference in arrival times between the three receiver pairings allows formation velocity to be calculated in triplicate, independent of the borehole fluid path.

**Full Waveform Log:** The probe records the full sonic wave-train at all receivers simultaneously. This can be displayed either as a variable-density log (VDL) or waveform ("wiggles") trace. The waveform data can be exported to be used in software packages, such as GeoCAD® for calculation of compressional (P), shear (S) and Stoneley velocities.

**GeoCAD® Sonic Module:** This optional package allows shear wave slowness processing from the full waveform data. These can be combined with additional density data to determine elastic moduli. First arrivals and waveform amplitudes can also be determined by the CBL function to provide cement bond quality reports.

## SPECIFICATION:

### Features

- Short probe can be handled by single operator and easily transported
- Slim diameter for narrow boreholes
- Rigid construction for effective centralisation
- Down-hole digitisation of waveform data
- Detection gain and threshold under operator control
- Detection point and wavelet display shown in real-time

### Measurements

- Formation velocity (slowness)
- Time of first arrival (delta-t)
- Integrated transit time
- Full-waveform data from 3 receivers
- Shear and Stoneley velocities (requires additional interpretation software)
- Natural Gamma

### Applications

#### Geotechnical / Mining / Water

- Fracture and permeability indication in hard rock
- Rock strength and elasticity
- Lithology identification
- Porosity
- Correction of seismic velocity

### Operating Conditions

#### Borehole type:

- Sonic: open-hole, water-filled
- Centralisation: required
- Recommended Logging Speed: 3m/min

### Specifications

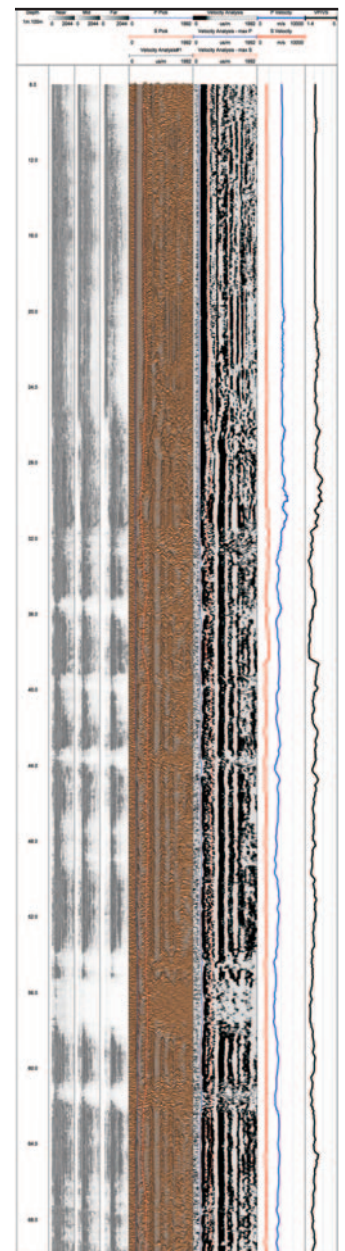
- Diameter: 45mm
- Length: 2.57m (2.96m with natural gamma)
- Weight: 11.5kg with natural gamma
- Temperature: 0-70°C (extended ranges available)
- Max. pressure: 20MPa

### Part Numbers

- 1013861 Full Waveform Triple Sonic probe with natural gamma

#### GeoCAD® Sonic Module

- 1020983 GeoCAD® Sonic Module



Example of logging data

[▶ CLICK HERE FOR ENQUIRY FORM](#)