Robertson Geo PS Logger
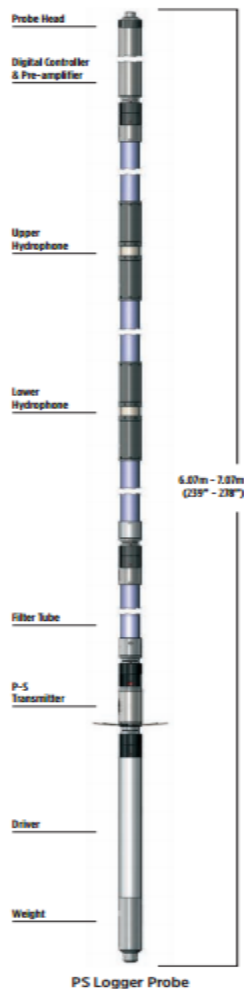

PS Logger Probe

Introduction

The Robertson Geo PS suspension logger measures compression and shear velocities of surrounding rock and soil from within deep uncased boreholes.

Operation

The system uses a seven metre probe, containing a source and two receivers placed one metre apart and suspended on a cable, which also acts as the data umbilical to the receiver/control device on the vessel. The probe is lowered in to the borehole to the specified depth, where the source generates a pressure wave in the borehole. The pressure wave is converted into seismic waves at the borehole wall. At the wall at each receiver location the seismic waves are converted back into pressure waves and received by the geophones that send the data to the recorder on the vessel.

Application

The probe is a high energy shear-wave source that has around 20x the output energy of a conventional borehole sonic. This makes it highly effective in soft soils and other attenuating formations where conventional full-wave form sonics often perform poorly.

Measurements

Able to measure compression wave velocities and formation shear wave velocity. Utilised to measure the physical properties of soil and rock to determine the shear modulus, bulk modulus, compressibility and Poission's ratio.

Specification

Diameter:	50mm
Assembled length:	6.07-7.07m (1 or 2m filter)
Assembled weight:	26.5kg or 28kg (1 or 2m filter)
Max. temp:	70°C
Max. Pressure:	6.5MPa
Transducer type:	solenoid and hammer
Receiver type:	3D hydrophones (p), geophones (s)
Receiver spacing:	1000mm (3.28ft)
Waveform acquisition period:	5.12mS to 409.6mS
Downhole gain:	0db to 42db (surface control)

Robertson Geo PS Logger
Obtains both P- and S-wave velocity data reliably in single holes at depths greater than 60 metres and has been used down to 600 metres.
Data is in high resolution (typically 1m) and can therefore be used to resolve thin layers that can have a dramatic effect on surface response.
Requires only one hole.