

# SET SEISMIC CROSS HOLE

The set seismic cross-hole is our set of instruments for borehole surveys specifically designed for a thorough geophysical investigation of the subsurface and for the measurement of seismic waves of compression and shear specifically designed for the seismic survey of concrete dams, soil materials and embankments.

Cross-Hole test consists in the direct measurements of horizontally travelling compression (P) and shear (Sv) seismic waves at test sites (i.e soil materials, concrete dams, embankments, etc) in order to get Elastic modules and local site characteristics.

Two specific borehole seismic sources are used to generate a seismic wave train.

One or more receivers are used to detect the arrival of the seismic wave train in offset borings; the distance between boreholes at the test depths is measured using a borehole deviation survey (Inclis DH).

Wave velocity is calculated from the measured distance and travel time for the respective wave train.

## APPLICATIONS

- Seismic cross-hole (2 or 3 bore holes)
- Seismic down-hole
- Seismic tomography
- Ground elastic modules estimation
- Cavities / faults detection
- Detection of infiltration

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## P WAVES

SOLGEO SPARKER TM is an automatic source used to generate P waves; it works at many different levels of power (from 100J to 500J) ensuring frequency contents from 100 Hz up to 6kHz; it must be used in boreholes filled with water.

## S WAVES

SOLGEO GEOSvTM is used to generate S waves. The energy source substantially is composed of two parts: a central section, that contains the pneumatic clamping tools and second part that contains the electrodynamic waves generator. The device allows it to automatically produce both upwards and downwards signals, in order to obtain an inversion of the shear waves polarization without P waves noise. The Solgeo vertical geophone receiver, AVG (Amplified Vertical Geophone), contains a vertical sensor with an electronics preamplifier. The clamping to the borehole casing is obtained with a pneumatic device allowing surveys in boreholes till to 200 m of depth.

**Contact now your  
dedicated consultant:**

**commerciale@solgeo.it  
+39 035 4523705**



- 1 Pressure regulator for pneumatic coupling of S-wave transmitter and receiver
- 2 Seismic power supply, electric suroltage for generating the energy necessary to run/operate the P-wave and S-wave transmitters
- 3 Remote control of the electric survolter
- 4 GEOSv transmitter, probe for the generation of vertically polarised shear waves (S)

- 5 Sparker transmitter, probe to generate compression wave (P)
- 6 Interchangeable high-voltage connection cable for the two sparker and GEOSv sources/transmitters
- 7 Inclinator probe, Inclis30, for measuring 3D borehole deviation
- 8 Hydrophonic receiving probe, single channel, for receiving compression waves (P)

- 9 Geophonic receiving probe, single vertical channel, for receiving shear waves (S)
- 10 Connection cable for receivers probes and inclinometer probe
- 11 Air compressor for managing the pneumatic coupling
- 12 2-channelS, high-sampling ALLinONE data logger