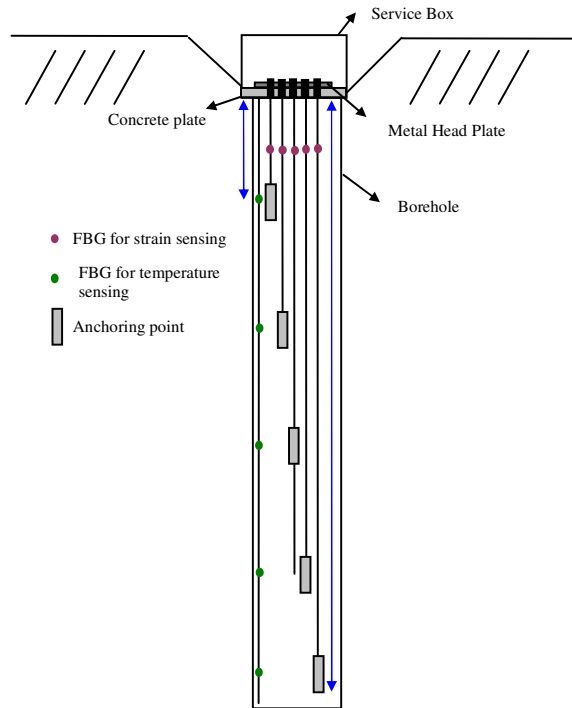


## Borehole Deformation System BDS-01

### Description

The borehole deformation system is based on the Fibre Bragg Grating technology and is designed to monitor the deformation in the longitudinal direction of a borehole.

Within the borehole, different fixation points can be realized at well defined positions by using special borehole anchors. Furthermore, a strain cable (see SC-01) is connected between each anchoring point and a metal head plate fixed at the entrance of the borehole. In this way, the displacement of each anchoring point relative to the entrance point of the borehole can be measured. Furthermore, a temperature cable can be inserted to measure the temperature distribution inside the borehole.



### Installation issues

The borehole extensometers can be installed in a 86 mm borehole. Boreholes should be free-draining, if possible. Holes must be clean and free of dirt before installation. The extensometer measures only axial movement, so boreholes should be drilled to accommodate this.

The depth of the anchors is determined mainly by geological factors and the size and geometry of the mass being instrumented. It is useful to have one of the anchors located in stable ground so that it can serve as a reference for movements of the other anchors.

### Features

- Measurement of axial displacements in boreholes for up to 6 different anchoring points.
- Draw Tower Gratings (DTGs) are used ensuring high fiber strength
- Temperature cross-sensitive: when large temperature variations are expected, a temperature chain can be inserted for compensation purposes.

## Applications

The borehole deformation system can be applied for borehole deformation movements and thermo-mechanical characterization of clay, rock, granite and salt cavities or tunnels. It can also be used to measure and monitor settlement in a foundation due to construction of a heavy structure over the foundation.

## Standard specifications

Parameter	Unit	Value
Number of extensometers	-	≤ 5
Displacement accuracy	%	1
Displacement range	% FD <sup>1</sup>	1
Temperature range <sup>2</sup>	°C	-10 to 60
Number of temperature sensors	-	On request
Depth of the borehole <sup>3</sup>	m	≤ 20
Diameter of the borehole	mm	86
Connector type	-	FC/APC

<sup>1</sup> FD = Fixation Depth of the anchor

<sup>2</sup> Extended temperature range possible on request

<sup>3</sup> Extended depths (borehole) possible on request

## Ordering information

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