

## Embankment Pressure Cell – PCCQ01

A Pressure Cell is designed to measure total stress in rock, soil or interface of two media. The instrument is a 1D device which only measures pressure acting normal to its flat surface. Pressure Cells are constructed from two circular stainless steel plates, precisely welded together around their periphery. The space between these plates is filled with a deaired fluid (usually hydraulic oil or glycol). The cell is connected to a pressure transducer by a stainless steel tube. Since there is no air entrapped in this closed hydraulic system, any pressure applied to the surface of the steel plates is transferred to the transducer and is converted to an electrical signal. This signal in turn will be read by a readout unit or a data acquisition system.

### Application

Some of the applications of this instrument are:

- Monitoring actual pressure in mine backfill or embankment dam.
- Recording active pressure on a retaining wall.
- Assessment of external pressure acting on tunnel linings.
- Monitoring pressure acting on foundations and piles.

### Operation and Installation

To install a pressure cell in an embankment, the location is prepared by laying a soft layer of soil. The cell is placed on the layer and is covered by similar soft material. Additional material is then placed on the cell and is compacted with hand compactors. When the thickness of the covering material is thick enough, mechanical compactors can be used. The cable of the instrument is laid on the soft material in the ground with about 20% slack to compensate for any differential displacements in the structure. The cable is connected to the reading system and any changes in total stress normal to the cell is recorded.

For the cases where pressure cell is embedded in the concrete, to overcome the shrinkage in the mass after hardening, an additional tube (compensation tube) is considered which once pressed, injects additional fluid to the cell system and compensates for the shrinkage. This will bring the cell in contact with the concrete again .



### Order information

PCCQ01 – AAA – BB – CC  
 AAA (Pressure range in Bars): 10, 20, 40 ,  
 60,100, 200, 250  
 BB: cable length in meters  
 CC (Pad size in cm): 20, 30

Technical Spec	
Transducer type	Piezoresistive sensor
Accuracy	1% F.S.
Resolution	0.05% F.S.