SYSTEL
Geotech India Pvt. Ltd.

ISO 9001

CE

EARTH PRESSURE CELLS	SI-EP-001, SI-SC-001

Model SI-SC-001 Series Earth Pressure Cells are used to measure total pressure in soils and embankments, at the interface of two different materials or measurement of stress in concrete. They are also used for measurement of contact pressures on retaining walls, buildings, bridge abutments, tunnel linings etc.

The Pressure Transducer consists of a rigid cylindrical housing having inside it with vibrating wire sensor with the resonant frequency of vibration of a tensioned steel wire is proportional to the strain or tension in the wire. This fundamental relationship is utilized in a variety of configurations for the measurement of pressure. Vibrating wire sensors are well known for their long term stability.

FEATURES

- Unprecedented sensitivity
- Long term stability and reliability
- Isolation of the sensor from the effects of total stresses acting on the body of the Strain gage
- Robust and sturdy construction
- Slim-line design

TYPICAL APPLICATION:

Total Pressure Cells are used to measure *total pressure* acting at their point of installation. This pressure is the sum of pore pressure and the stress. To know the value of stress alone, the pore pressure at that point should also be ascertained and deducted from the total stress.

Some important applications of Total Pressure cells are:

- To assess changes in stress distribution within embankments of earth or concrete dams.
- To measure stress at the interface of soil and concrete.
- To determine contact pressure on retaining and diaphragm walls, piers, tunnel linings.
- For measuring pressure on and within lining of underground excavations.

DESCRIPTION:

The Pressure Cell consists of two circular stainless steel plates welded together around their periphery leaving a narrow cavity between them. The cavity is filled with antifreeze fluid. During installation, care has to be taken to see that the cavity lies perpendicular to the stress to be measured. A small length of high pressure stainless steel tubing connects the cavity to a pressure transducer.

OPERATION:

Any change in the pressure on the pressure pad has to be balanced by a corresponding change in the pressure of the internal fluid. The latter is communicated to the pressure transducer and changes the tension of the vibrating wire. The wire is plucked by energizing the coil magnet so that it vibrates at its natural frequency. The resonant frequency is proportional to the square root of the tension in the wire. A conventional readout unit can accurately measure the resonant frequency of the wire. A microprocessor based readout unit can display the frequency as well as the value of the measured parameter directly in engineering units.

EARTH PRESSURE CELL consist of two circular stainless steel plates welded together around their periphery and spaced apart by a narrow cavity filled with de-aired oil.

SHOTCRETE STRESS CELL is designed for the measurement of tangential and radial stresses in shotcrete tunnel linings.

SPECIFICATION

EARTH PRESSURE CELL	SHORTCRETE SRESS METER
MODEL SI-EP-001 Standard Ranges: 10 -200 Ksc. Over Range: 150% F.S. (maximum) Sensitivity: 0.1% F.S. Accuracy: ±0.1% F.S. Temperature Range: −20°C to +70°C Diameter: 6 × 230 mm.	**MODEL SI-SC-001** Standard Ranges 10 -200 Ksc. Over Range 150% F.S. Resolution 0.025% F.S. Accuracy ±0.1% F.S. Temperature Range −20°C to +60°C Dimensions: 200 × 100 × 6 mm & 250 × 150 × 6 mm

ACCESSORIES:

- Special coating on the surface for salt application
- Splicing kit
- Junction box
- Readout Unit