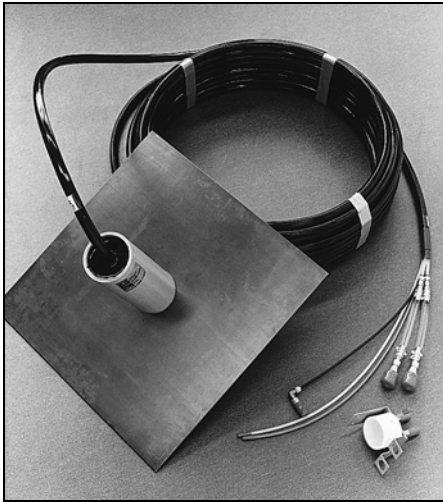
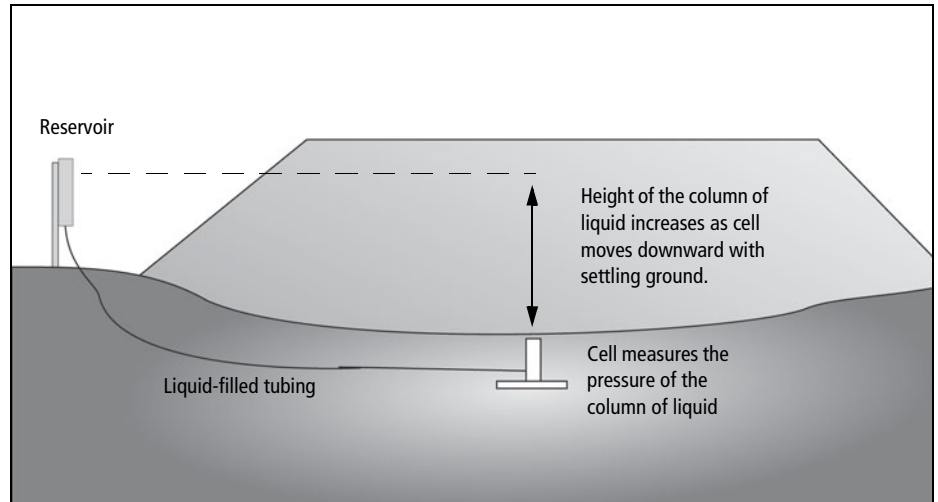


Pneumatic Settlement Cell



Settlement cell with plate, tubing, and reservoir.



Settlement cell provides settlement measurements with no interference to construction activities.

Applications

The pneumatic settlement cell is used to monitor settlements in soil. Typical applications include:

- Monitoring settlement or heave in embankments.
- Monitoring settlement due to dewatering and preloading.
- Monitoring consolidation of soil under storage tanks.

Operation

The pneumatic settlement cell comprises a reservoir, liquid-filled tubing, and a pressure transducer.

The reservoir is located on stable ground, away from the construction area. The liquid-filled tubing runs from the reservoir down to the pressure transducer, which is embedded in fill or installed in a borehole.

The transducer measures the pressure created by the column of liquid in the tubing. As the transducer settles with the surrounding ground, the height of the column is increased and the transducer measures higher pressure.

Settlements are calculated by converting the change in pressure to millimeters or inches of liquid head.

Advantages

Remote Readout: The reservoir and readout station can be located away from the construction area. The cell and tubing are buried and do not interfere with construction activities.

Simple Operation: The cell can be read by one person.

PNEUMATIC SETTLEMENT CELL

Pneumatic Settlement Cell51416300

Includes settlement cell, connection of tubing to cell, and quick-connect sockets for connection to reservoir. Does not include tubing or pneumatic quick-connect plug (both required) or settlement plate (optional).

Sensor type: Twin tube pneumatic transducer.

Range: Approximately 64 m (210') of liquid head. Minimum head 1.5 m (5') required.

Resolution: 0.001 bar, 0.01 psi using metric and English-unit modes of digital gauge on 256 indicator.

Repeatability: $\pm 0.25\%$ FS to $\pm 1\%$ FS.

Accuracy and repeatability of the system depend on a number of factors, including accuracy of gauge, proper operation of indicator, proper installation of tubing and reservoir, and proper maintenance of deaired liquid in tubing.

Dimensions: Cell diameter is 95 mm and cell height is 216 mm (3.75 x 8.5").

SETTLEMENT PLATE

Steel Settlement Plate51410100

Optional accessory for settlement cell. Steel plate 460 x 460 mm (18 x 18") bolts to the bottom of the cell to help maintain upright orientation. Recommended when cell is installed in fill.

TUBING

Tubing 50706201

Twin 1/4" tubes filled with de-aired liquid and twin 3/16" pneumatic tubes. Specify length.

Quick-Connect Plug 51407301

For connection of pneumatic tube to indicator. One required for each cell. Attached at factory.

Splice Kit 51401715

Includes unions and other hardware to make one splice.

VENTED RESERVOIR

Vented Reservoir 51419500

Includes mounting hardware and small bottle of de-aired liquid.

De-Aired Liquid, 1 Quart 51419552

One quart of 50/50 ethylene glycol-water mixture for maintaining level of liquid in reservoir. Mixture has relative density of 1.065.

READOUTS

256 Pneumatic Indicator51425602

Recommended readout is the 256 pneumatic indicator with digital gauge. See separate data sheet for more information.