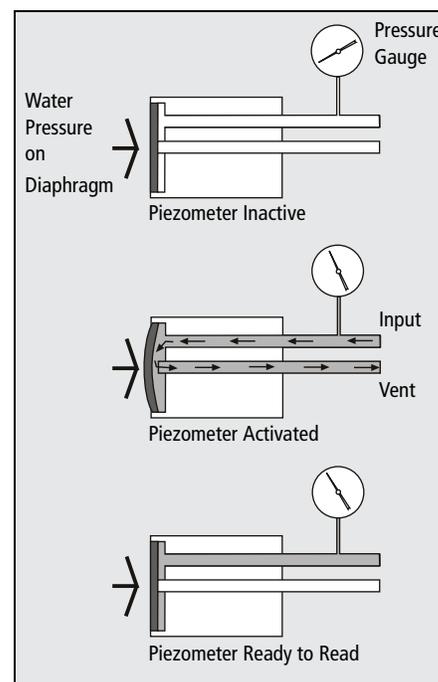
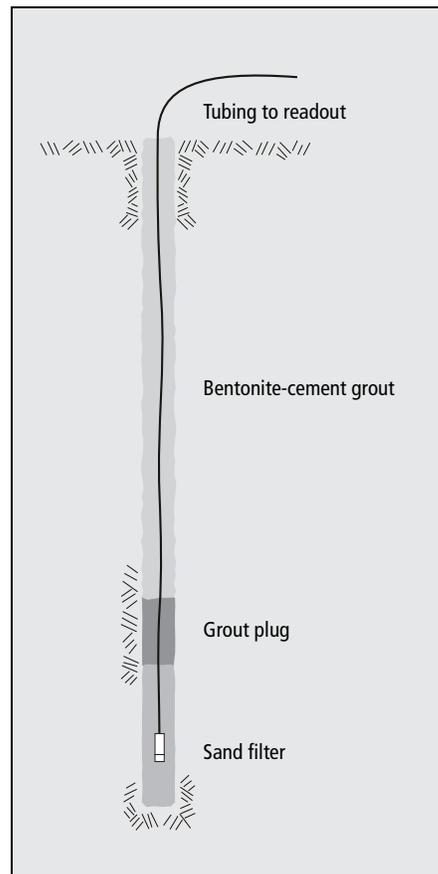


Pneumatic Piezometer



Applications

Pneumatic piezometers are used to measure pore water pressure in saturated soils. Applications include:

- Monitoring pore pressures to determine safe rates of fill or excavation.
- Monitoring pore water pressures to determine slope stability.
- Monitoring the effects of dewatering systems used for excavations.
- Monitoring the effects of ground improvement systems such as vertical drains and sand drains.
- Monitoring pore water pressures to check the performance of earth fill dams and embankments.
- Monitoring pore water pressures to check containment systems at landfills and tailings dams.

Advantages

Slope Indicator's pneumatic piezometers employ a simple and reliable transducer that is inherently free from drift.

Long term performance is enhanced by corrosion-resistant plastic construction, polyethylene tubing, and in-line filters in all connectors.

Twin-tube design is compatible with both "flow" and "no-flow" reading techniques.

Operating Principle

In a typical installation, the piezometer is sealed in a borehole, embedded in fill, or suspended in a standpipe. Twin pneumatic tubes run from the piezometer to a terminal at the surface. Readings are obtained with a pneumatic indicator.

The piezometer contains a flexible diaphragm. Water pressure acts on one side of the diaphragm and gas pressure acts on the other.

When a reading is required, a pneumatic indicator is connected to the terminal or directly to the tubing. Compressed nitrogen gas from the indicator flows down the input tube to increase gas pressure on the diaphragm. When gas pressure exceeds water pressure, the diaphragm is forced away from the vent tube, allowing excess gas to escape via the vent tube.

When the return flow of gas is detected at the surface, the gas supply is shut off. Gas pressure in the piezometer decreases until water pressure forces the diaphragm to its original position, preventing further escape of gas through the vent tube.

At this point, gas pressure equals water pressure, and a reading can be obtained from the pressure gauge on the indicator.

PNEUMATIC PIEZOMETER

Sensor Type: Twin-tube pneumatic transducer.
Range: Pressure rated for 27.5 bar or 400 psi. Working range depends on gauge supplied with pneumatic indicator.
Gauge Accuracy: ±0.25% FS.
Diaphragm Displacement: 0.01 ml typical.
Filter: Sintered stainless steel, 50 micron pores.
Materials: ABS and PVC plastic body, synthetic rubber diaphragm.
Diameter: 25.4 mm (1").

PIEZOMETER ONLY

Pneumatic Piezometer 51417800
 Part number includes only piezometer. Tubing is attached to piezometer at factory and must be ordered at same time as piezometer.

PIEZOMETER WITH TUBING

Piezometer & 50' of tubing 51417801
Piezometer & 100' of tubing 51417802
Piezometer & 150' of tubing 51417803
Piezometer & 200' of tubing 51417804
 Order numbers specify a pneumatic piezometer with tubing and quick-connect plug. These piezo-meters are stocked for faster delivery.

TUBING & CONNECTORS

Twin Tubing 51416900
 Two polyethylene tubes bundled in polyethylene jacket.
Tubing Size: 4.76 mm with 1 mm wall (3/16" with 0.04" wall).
Jacket: 12 mm x 7 mm with 1.1 mm wall (0.46" x 0.28" with 0.045" wall).
Burst Pressure: 3.4 MPa (500 psi).
Minimum Bending Radius: 75 mm (3").
Tubing Buoyancy: 0.021 kg per m (0.014 lb per foot).
Weight: 0.06 kg per meter (0.04 lb per foot).

Splice Kit 51401723
 Includes 3 brass unions, self-vulcanizing mastic pad, and sealing tape.

Quick Connect Plug 51407302
 Brass quick-connect fitting for input tube. Plug includes in-line filter and 90° elbow for insertion into panel.

PNEUMATIC INDICATOR

With 0.25% Analog Gauge 51425601
With 0.25% Digital Gauge 51425602
 See separate datasheet for details.

INSTALLATION ACCESSORIES

Small Canvas Bag 06240000
Large Canvas Bag 06240001
 Creates a sand filter around piezometer. Also assists with sinking the piezometer in water-filled boreholes. Small bag is 64 x 457 mm (2.5 x 18"). Large bag is 114 x 457 mm (4.5 x 18").
Push-In Well Point 51400099
 Steel well point for piezometer, 30 x 610 mm (1.25 x 24"), 2 kg (4.4 lb). This part number includes labor to insert piezometer into well point, but does not include piezometer, tubing, or quick-connect plug.