

VIBRATING WIRE PIEZOMETERS

PW Series

APPLICATIONS

The PW series of vibrating wire piezometers is designed to measure pore-water or other fluid pressure. It is used to monitor engineering works such as hydraulic structures, foundations, retaining walls, dams, embankments, excavations, tunnels, waste repository sites, etc. Thousands of PW piezometers have been installed in such works throughout the world.

DESCRIPTION

The PW piezometer consists of a vibrating wire sensing element enclosed in a protective steel housing. The sensing element is formed essentially of a steel wire clamped to both ends of a hollow cylindrical body. An electromagnetic coil is used to excite the wire and to measure its vibration period. The period is sensitive to the pressure applied onto the sensing element.

The excellent long-term reliability of the PW results from the use of the latest developments in vibrating wire technology. For instance, the wire is clamped by a proven hydraulic swaging technique that ensures high stability. The sensing element is hermetically sealed in order to protect the steel wire against corrosion. All parts of the sensing element other than the wire are machined from a high-grade stainless steel. The PW is fitted with a surge protector and resists electrical and radio frequency interferences, as determined by tests compliant to IEEE and CEI specifications.

Five models of PW piezometers are available:

The PWS is designed to be embedded in earth fills, at concrete/earth interfaces or inserted into boreholes and small-diameter pipes. The end of the PWS is fitted with a high or low air entry filter, which protects the sensing element from solid particles, allowing this model to sense only the fluid pressure to be measured. The filter is easily removable in case of saturation.

The PWF is a thick-walled version of the PWS for use in direct burial applications.

The PWC is provided with a pipe thread adapter, thus enabling the piezometer to be used as a pressure transducer.



Model PWS, PWC, PWF and PWP

FEATURES

- Long-term reliability
- High accuracy and resolution
- Wide measuring range
- Rugged stainless steel construction
- Surge protection
- Triple water block
- Temperature reading

The PWP is designed to be driven into unconsolidated fine grain materials such as sand, silt or clay. The external housing is a thick-wall cylinder fitted with a conical shoe at one end and an EW drill rod or standpipe thread adapter at the cable entry end.

The PWL piezometer is a low-pressure piezometer (35, 70 kPa).

SPECIFICATIONS

PERFORMANCE

Range ¹	0.035 ² , 0.070 ² , 0.2, 0.35, 0.5, 0.75, 1, 1.5, 2, 3, 5, 7 MPa
Accuracy ³	±0.5% F.S. (±0.1% optional)
Resolution with MB-6T readout	0.025% F.S. (min.)
Thermal drift ³	±0.1% F.S. / °C
Thermistance	3 kΩ (see model TH-T)
Cable ⁴	IRC-41A, IRC-390, IRC-41AV

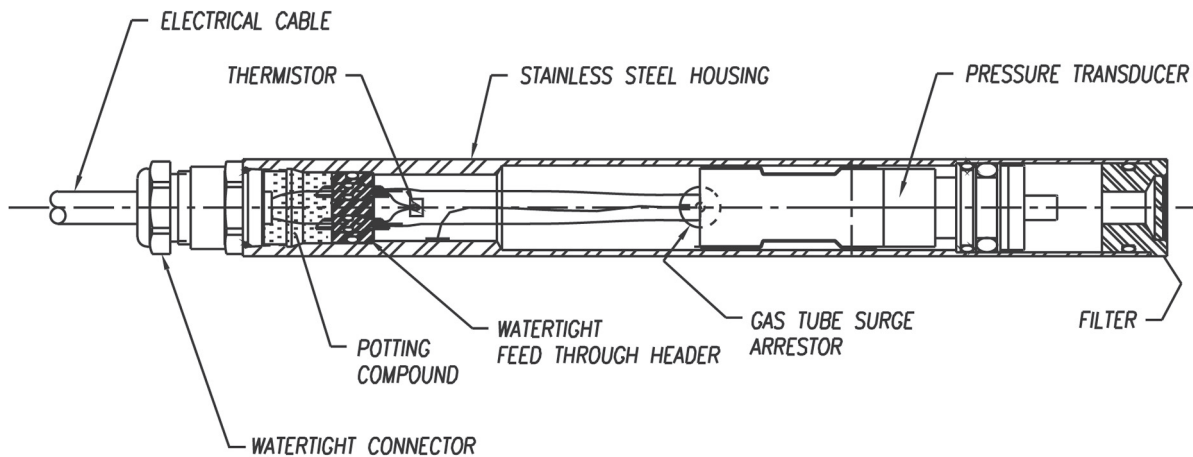
MODEL	PWS	PWF	PWC	PWP	PWL
Housing	Slim	Thick-walled	Threaded (STD 1/4 in – 18 NPT male)	Push-in point with EW thread	—
Outside diameter	19 mm	28.6 mm	19 mm	33.4 mm	38 mm
Length	200 mm	200 mm	213 mm	260 mm	200 mm
Material	Stainless steel				
Filter	Stainless steel, ~50 µm, ~10 kPa, low air entry Ceramic, ~1 µm, ~450 kPa, high air entry				

¹ Other ranges available on request. 1 MPa = 145 psi

² Available only with Model PWL

³ Specifications achieved in laboratory conditions

⁴ PWL must be used with vented cable type IRC-41AV



Model PWS

OPTIONS

- Type of thermistor, filter and cable
- Upgraded accuracy
- Calibration to –100 kPa

ORDERING INFORMATION

Please specify:

- Model and range
- Cable length
- Options
- Readout instrument: MB-6T(L), SENSLOG