Vibrating Wire Piezometers

Model 1270-GS-PW Series

FEATURES

- ***Long-Term Stability in Extreme Conditions***
- ***Hermetically Sealed Transducers***
- ***High Resolution and Accuracy***
- ***Stainless Steel Construction***
- ***Manual Readings or Automatic Recording using Dataloggers.***
- ***Readings Not Affected by Long Cables***
- ***Lightning Surge Protection***
- ***Inbuilt Temperature Sensor***

APPLICATIONS

Vibrating Wire Piezometers are typically used to measure fluid or water pressures for:

- *Pore-Water Pressures*
- *Groundwater Levels*
- *Fluid Levels in Tanks*
- *Hydraulic Pressures in Pipes*
- *Pump Drawdown Tests*
- *Water Pressures Behind Retaining/Tunnel Walls*

Models PWF, PWP and PWS

General

The 1270 PW Series Vibrating Wire Piezometers are designed to measure fluid or pore-water pressures in variety of applications. They are typically installed in boreholes in in-situ soils, rocks, foundations or earth/rock fills or used in hydraulic systems to measure fluid levels or pressures.

The VW Piezometers are typically used in geotechnical monitoring studies in large civil engineering and mining projects (such as dams, highways, tunnels, airports, landfills , deep excavations, open-cut mining, underground mining, reclamations etc).

Operating Principles

The 1270-PW Series VW Piezometer incorporates a Roctest vibrating wire pressure sensor enclosed inside a stainless steel housing. The VW sensing element is formed essentially of a steel wire clamped under tension between a sensitive diaphragm at one end and the rear body of the transducer at the other.

An electromagnetic coil (in the sensor) is used to excite the wire to vibrate (ring) and then to measure the vibration frequency of the wire. The measured frequencies varies accurately in accordance with the calibrated values between frequency and applied pressure on the diaphragm element of the sensor.

Construction

The excellent long-term reliability of Roctest PW Series VW piezometer sensors has resulted from the utilisation of latest developments in vibrating wire technology. The wire is clamped at both ends using the proven swaging technique that ensures high stability.

All parts of the piezometer and sensor element (other than the wire) are fabricated from high-grade stainless steel. The sensor element is hermetically sealed to protect the steel wire inside against corrosion.

The piezometers are fitted with a surge protection unit and an in-built temperature sensor (thermistor).

The piezometers will be supplied with standard Low Air Entry sintered stainless steel filters. High Air Entry ceramic filters can be supplied on request.

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FOR FURTHER INFORMATION
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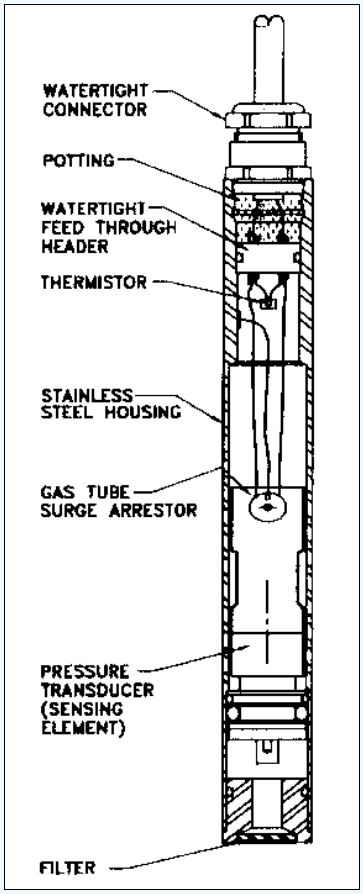
Models

- ***Model 1270-PWS*** *Standard Piezometer is designed to be embedded in embankments, earthfills or installed inside drilled boreholes.*
- ***Model 1270-PWP*** *Drive-Point Piezometer is designed to be driven into unconsolidated soils (clay, silt or fine sand). It incorporates thick wall body, tapered shoe and threaded adapter for EW drill rods.*
- ***Model 1270-PWF*** *Heavy Duty Piezometer is a thick wall version of the standard PWS piezometer for deep installations in boreholes, embankments and dams.*
- ***Model 1270-PWC*** *Pressure Transducer is provided with pipe thread fitting to allow direct connection to hydraulic or pneumatic systems to measure pressure.*
- ***Model 1270-PWL Model*** *is a low pressure piezometer.*



PWS Piezometer Schematic

Accessories

- *Portable Readout Units*
- *Datalogger System*
- *Terminal/Junction Boxes*
- *Lightning Protection*
- *Bentonite Pellets*
- *Borehole Packers*
- *Splicing Kits*

Options

- *Filter Type*
- *Cable Type*
- *Upgraded Accuracy*

Ordering Information

Please specify:

- *Model Number*
- *Pressure Range*
- *Cable Length*
- *Accessories Required*
- *Options Required*

Specifications

PERFORMANCE	
Measuring range in kPa	200, 350, 500, 750, 1000, 1500, 2000, 3000, 5000, 7000 (other ranges available)
Resolution:	• *Vibrating wire:* 0.01 msec 0.01 L.U. 0.01 Hz • *Temperature:* 0.1°C
Accuracy:	0.5% F.S. (0.25% and 0.1% optional)
Thermal Drift:	± 0.1% F.S./°C
Maximum Overload:	2 ´ measuring range

CONSTRUCTION					
Model:	**PWS**	**PWF**	**PWL**	**PWC**	**PWP**
Description:	Standard Model	Thick Wall	Low Pressure	Threaded (STD ¼" – 18 NPT male)	Push-in point with EW thread
Material:	Stainless Steel				
Outside diameter (mm):	19	28	38	19	33
Length (mm):	135/200	135/200	135/200	213	260
Filter:	Standard 50-micron Low Air Entry sintered stainless steel filter Alternative: 1.6-micron High Air Entry ceramic filter				

THERMISTOR AND ELECTRICAL CABLE	
Type:	3 kΩ (2 kΩ optional)
Measuring Range:	-40 to 65°C
Accuracy	± 0.5% F.S.
Electrical cable: **(Direct Burial)**	• HCX 138-PE Polyethylene sheath 2 pair 7×0.30 mm tinned copper • HCX 138-PU Polyurethane sheath 2 pair 7×0.30 mm tinned copper
Wiring code:	See Calibration Data Sheet

Due to on-going design improvements and reviews, we reserve the right to amend product and specifications without prior notice

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