Vibrating Wire Piezometer

Description

The RST Vibrating Wire Piezometer provides excellent long-term accuracy, stability of readings, and reliability under demanding geotechnical conditions. Vibrating Wire Piezometers are the electrical piezometers of choice as the frequency output of VW devices is immune to external electrical noise and able to tolerate wet wiring common in geotechnical applications.

Vibrating Wire Piezometers contain a high tensile steel wire with a fixed anchor at one end and are attached to a diaphragm in contact with water pressure at the other end. The wire is electrically plucked, with the resonant frequency of vibration proportional to the tension in the wire. This frequency induces an alternating current in a coil which is detected by the readout unit, such as the VW2106 Vibrating Wire Readout, and can then be converted to a pressure. The frequency output is immune to external electrical noise.

The frequency signal is exceptionally immune from cable effects, including length (to several kilometers), splicing, resistance, noise pickup, and moisture. The vibrating wire coil circuit contains no semiconductor devices and has built-in ionized gas discharge device protection against transient damage. As a result, the vibrating wire piezometer provides excellent reliability in typical geotechnical situations – i.e. long outdoor cables buried in saturated soil.

The piezometer is equipped with a standard sintered stainless steel porous filter to prevent soil particles from contacting the diaphragm. A thermistor is built into the piezometer body to permit temperature measurement and temperature compensation of the piezometer. Standard construction is all stainless steel. RST vibrating wire piezometers are shipped with extremely tough polyurethane-jacketed foil-shielded cable for maximum endurance in field conditions.

Download Vibrating Wire Piezometer Calibration Files

Specifications

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ITEM	SPECIFICATION
Over range	2 X F.S.
Resolution	0.025% F.S. minimum
Accuracy	0.1% F.S.
Linearity	<0.5% F.S.
Operating Temperature	-20 to 80°C (-4 to 176°F)
Diaphragm Displacement	<0.001 cc at F.S.
Thermal Zero Shift	<0.05% F.S./°C
Materials	Hermetically sealed stainless steel housing
Thermistor Type	NTC 3K Ohms @ 25°C
Thermistor Interchangeability	±0.2°C

Thermistor Resolution	0.1°C
Filter	50 micron sintered filter. (High air entry alumina filter 1 Bar available)

Electrical Cable Specifications

PART #	DESCRIPTION
EL380004	Two twisted pairs cable with polyurethane jacket
EL380004HDL	Two twisted pairs heavy-duty cable with a thick polyurethane jacket mold for added protection
EL380004K	Two twisted pairs Kevlar® reinforced, non-stretch polyurethane jacketed cable for rigorous installations where the stretching of cable is a concern

*Other types of cables, depending on site conditions and atmospheric reference requirements, are available upon request. These include vented, FEP, PVC, polyurethane, and armored varieties.