

Vibrating Wire Piezometer



Model 1200

The HMA Geotechnical Vibrating Wire Piezometer has been designed to remotely measure fluid pressures in earthen masses.

APPLICATIONS

Pore pressure measurement in fully and partially saturated soils in compacted fills, embankments boreholes and standpipes.

OPERATING PRINCIPLE

HMA Geotechnical Vibrating Wire Piezometers are based on the simple principle of resonance. The instrument consists of a vibrating wire element connected to a sensitive diaphragm. Electromagnetic coils located nearby 'pluck' the wire causing it to vibrate at its natural resonant frequency. A change in pressure causes a deflection of the diaphragm that in turn alters the tension in the wire and the resonant frequency.

The electromagnetic coils are used to convert this frequency as that of the wire. For each frequency there is a corresponding pressure. Unlike conventional strain gauges, the vibration frequency in a Vibrating Wire Piezometer is not affected by changes in lead wire resistance. This means water penetration, temperature variations and contact resistance do not affect the output signal. Geotechnical Systems' Vibrating Wire Piezometers also offer excellent zero stability.

The piezometer is read using a digital readout or data logger. Readings can be in either frequency squared or period. Calibration data is provided with each instrument to permit the calculation of pore pressure.

The piezometer is fabricated from stainless steel components, selected to minimize thermal effects and electron beam welded together to ensure a hermetically sealed cavity for the vibrating wire element. The vibrating wire element is held in place using an extremely high pressure swaging technique. Each piezometer is laser marked with serial numbers and pressure ratings. A variety of filter permeabilities is available to meet different application requirements. The standard filter size is 40 micron pore diameter.

SPECIAL FEATURES

- Long term stability
- High resolution
- Remote readout capability
- Very Sensitive
- Hermetically sealed
- Stainless steel construction
- Rugged construction
- Not affected by long cable lengths



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SPECIFICATIONS

Pressure Ranges (kPa)	350, 700, 1000, 2000, 3000, 5000
Over Range	2 x Rated Pressure
Resolution	0.025% Full Scale
Accuracy	<±0.5% Full Scale
Operating Temperature	-20 to +65 Degrees C
Filters Sintered Stainless Steel	40 Micron
Dimensions	19mm Diameter, 136mm Length
Weight	0.2 kg

PERFORMANCE

Each piezometer is extensively tested over its working range prior to shipment.

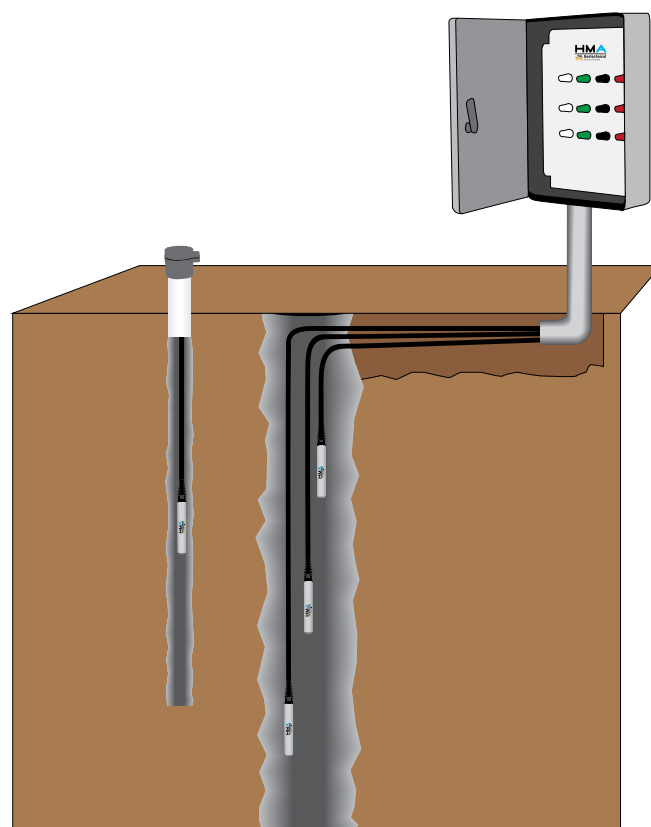
Individual calibration data sheets are supplied with each piezometer. HMA Geotechnical Systems calibration equipment is traceable to international standards

COMPATIBILITY

The HMA Geotechnical Systems Vibrating Wire Piezometers are compatible with most commercially available readout units. They require low voltage square wave excitation with swept frequency. Please contact the factory if in doubt.

ORDERING INFORMATION

When ordering HMA Geotechnical Systems Vibrating Wire Piezometers, please specify the model number and pressure range including cable length (allow 2% extra). Whether thermistor option is required and whether detailed calibration certificate is required.



Note: HMA Geotechnical is continually improving its products and processes, information contained within this brochure is subject to change without notice

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