

MODEL 1200

The Geotechnical Systems **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

Geotechnical Systems 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 change into an electrical output with the same 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 unit model 9120 or a data logger model 9125. 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 minimise 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.

Vibrating Wire Piezometer

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

SPECIFICATION	Vibrating Wire Piezometer	Model 1200
Pressure ranges (kPa)	250,350,700,2000,3500,5000	
Over range	1.5 x rated pressure	
Resolution	0.025% full scale	
Accuracy	<± 0.5% full scale	
Operating temperature	-20 to +65 degrees C	
Filters sintered stainless steel	0.5 and 40 micron	
Dimensions	22mm 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. Geotechnical Systems calibration equipment is traceable to international standards.

COMPATIBILITY

The 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 Geotechnical Systems Vibrating Wire Piezometers, please specify the following.

1. Model number and pressure range.
2. Cable length (allow 2% extra).
3. Whether thermistor option is required.
4. Whether detailed calibration certificate is required.

Because Geotechnical Systems is continually improving its products and processes, information contained within this brochure is subject to change without notice.