



ENCARDIO RITE



VIBRATING WIRE PIEZOMETER

MODEL EPP-30V-XX

INTRODUCTION

The piezometer, also known as pore pressure meter, is used to measure pore water pressure in soil, earth/rock fills, foundations and concrete structures. It provides significant quantitative data on the magnitude and distribution of pore pressure and its variations with time. It also helps in evaluating the pattern of seepage, zones of potential piping and the effectiveness of seepage control measures undertaken.

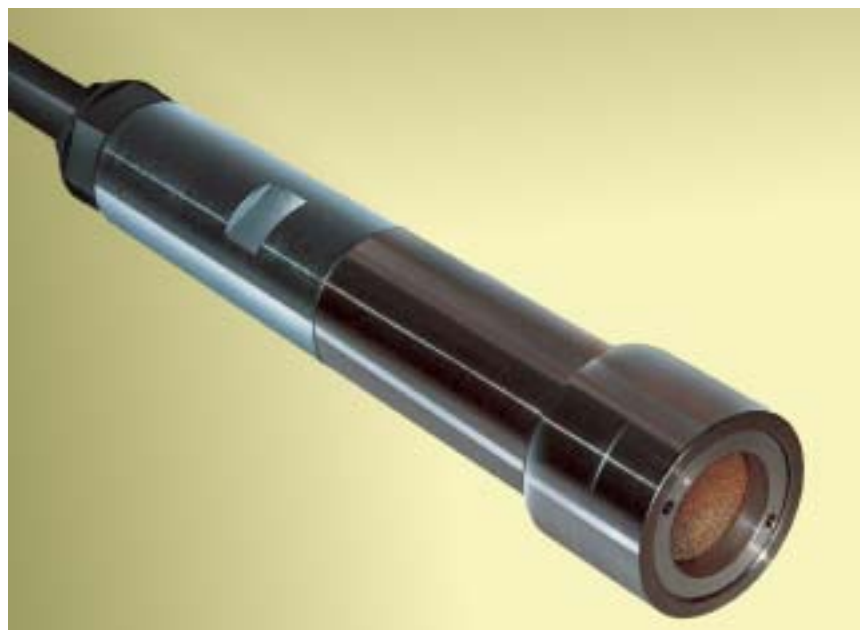
Proper evaluation of pore pressure helps in monitoring the behavior after construction and indicates potentially dangerous conditions that may adversely affect the stability of the structure, its foundation and appurtenant. It also provides basic data for design improvement that will promote safer and more economical design and construction.

OVERVIEW

The Encardio-rite piezometer incorporates the latest vibrating wire technology to provide remote digital readout of fluid and/or water pressure in standpipes, bore holes, embankments, fully and partially saturated natural soils, rolled earth fills and the interface of retaining structures. The superiority of Encardio-rite diaphragm type piezometers for these measurements is unquestionable.

OPERATING PRINCIPLE

The Encardio-rite pore pressure meter basically consists of a magnetic, high tensile strength stretched wire, one end of which is anchored and



FEATURES

- ◆ Reliable, accurate, low cost and simple to read.
- ◆ Protected against lightning spikes.
- ◆ Easy installation in standpipes, pressure vessels and ideal for underground work.
- ◆ Hermetically sealed under a vacuum of 0.001 Torr; stainless steel construction.
- ◆ Thermistor provided for additional temperature measurement.
- ◆ Not limited to depth of water being within 5 m from the observation station as is in the case of twin tube piezometers.
- ◆ Very small time lag.
- ◆ Ability to measure negative pressure.
- ◆ Transmission of signal as a frequency over long wire lengths.

APPLICATIONS

- ◆ To determine the flow pattern through earth/rock fill and concrete dams and their foundations and to delineate the phreatic line.
- ◆ Measuring the elevation of ground water in stand pipes, bore holes and wells.
- ◆ Hydrological investigation, construction control, stability investigation and monitoring of earth dams, foundations, shallow underground works and surface excavations.
- ◆ Monitoring & control of de-watering & drainage.

the other end fixed to a diaphragm which deflects in some proportion to the applied pressure. Any deflection of the diaphragm changes the tension in the wire, thus affecting the resonant frequency of the vibrating wire.

The resonant frequency with which the wire vibrates can be accurately measured by a vibrating wire readout unit. Our VW readout unit model EDI-51V is suitable for the measurement of pore pressure at site.

DESCRIPTION OF EQUIPMENT

The Encardio-rite pore pressure meter is well known for its long term stability. This is achieved by:

- ✦ Pressure and thermal cycling
- ✦ Unique method of wire clamping
- ✦ By generating a vacuum of 1/1000 Torr inside the sensor by electron beam welding. This results in effect of oxidation, moisture, environmental conditions and any ingress of water being completely eliminated.

The pore pressure meter is individually temperature compensated making the requirement of a thermistor for temperature correction redundant.

EPP-30/34V/1 Stainless steel body

The vibrating wire and coil magnet assembly is enclosed in a corrosion resistant stainless steel body which is electron beam welded to the diaphragm.

EPP-30/34V/2 Metallic or Ceramic filter

A low air entry value sintered metal or ceramic filter of 40 micron porosity is provided. A locking nut holds the filter in position. High air entry filters are also available as an option.

EPP-30/34V/3 Cable housing

The leads from the coil magnet are terminated on a glass to metal seal which is electron beam welded to the stainless steel body of the pore pressure meter. The two pins marked red and black are connected to the coil magnet. The other two pins are free and may be used in case a thermistor is required for measurement of temperature. A cable joint housing and cable gland is provided for the cable connection.

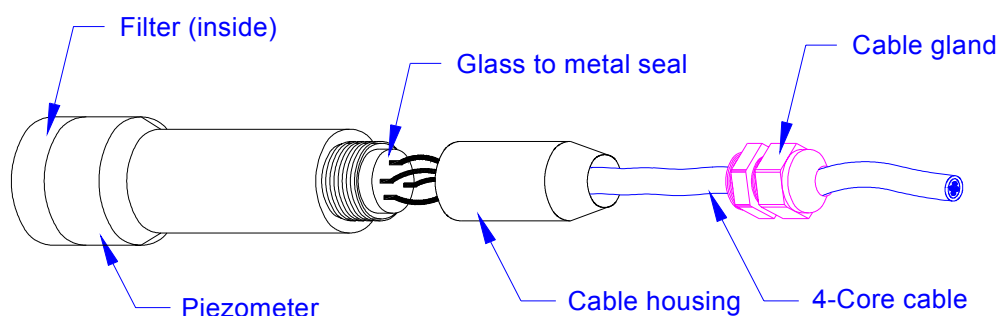
SPECIFICATIONS

Type	Vibrating wire
Range (kg/cm²)	2, 3, 5, 7, 10, 15, 20, 35, 50, 100, specify
Accuracy	± 0.25 % fs normal ± 0.1 % fs optional
Non conformity	± 0.5 % fs or better
Temperature limit	
Operational	-20 to 70°C
Compensated	0 to 55°C
Coil resistance	120 -140 Ohm nominal
Insulation resistance	Better than 500 MOhm at 12 V
Humidity effect	Nil (0 - 100 % RH)
Over range limit	150 % of range
Over range effect	± 0.1 % fs upto 120 %
Dead band	Within 0.1 % fs
Vibration effect	Nil (1 g, 50 - 500 Hz)
Thermistor	YSI 44005 or equivalent (3 kOhm at 25°C)
Enclosure	Stainless steel, hermetically sealed with a vacuum of 1/1000 Torr inside it
Required accessories	Portable read-out unit/logger

ORDERING CODE

Model: EPP-30V-X X X

└─ Range required: 2, 3, 5, 7, 10, 15, 20, 35, 50 or 100 (kg/cm²)



All specifications subject to change without prior notice.

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