



ENCARDIO RITE



TWIN TUBE HYDRAULIC PIEZOMETER

MODEL EHP-10

OPERATING PRINCIPLE

Encardio-rite model EHP-10 twin tube hydraulic piezometer system comprises of a piezometer tip with a nylon body and a ceramic filter of specified porosity, connected through a twin nylon tube (inlet and outlet nylon tubes enclosed in a polythene jacket) to a wall mounted manifold system.

The nylon tubes are filled with de-aired water, preferably boiled under vacuum, by circulating it through both the tubes and the tip. The tubes remain filled throughout their working life and can at any time be re-flushed to remove any air or gas that may have accumulated.

The pore pressure at the tip is measured at either or both the water tubes by a pressure transducer with a digital read-out indicator. The hydraulic piezometer system is suitable for measuring any positive or negative pore pressure up to (-) 5 m wc.

The pore pressure at any tip is determined by adding the head difference between the manifold system and the tip to the reading indicated by the read-out unit. Both the inlet and outlet tubes should give the same pressure reading. If this is not so, then some air or gas has accumulated in the tubes that should be removed by re-flushing. Re-flushing is only required in case of air or gas accumulation in the tubes.

For saturated soil, a low air entry ceramic filter of 60 microns porosity is provided. For partially saturated soil or where negative pore pressures are experienced, high air entry ceramic filter of average 1 micron porosity is provided.



FEATURES

- ◆ Reliable, accurate and simple to read
- ◆ Vibrating wire pressure transducer provided for measurement of water head.
- ◆ Use of two tubes helps in eliminating inaccuracies due to air and gas accumulation at the piezometer tip.
- ◆ High air entry ceramic filter also available for measurement of negative pore pressure and use in unsaturated soil.
- ◆ Low cost, rugged and easy to install

APPLICATIONS

- ◆ Uplift and pore pressure gradients in foundations, embankments and abutments.
- ◆ Monitoring and control of de-watering and drainage.
- ◆ Hydrological investigation and water supply operations.
- ◆ Construction control, stability investigation and monitoring of earth dams, embankments, foundations, shallow underground works and surface excavations.

Piezometers may be installed at any practical depth up to a distance of 500 m from the manifold system. However, in no case should the manifold system or the installed tubing be more than 5 m above the level of the water at the piezometer tip.

The output of the pressure transducer is suitable for transmission of data over long distances and for data logging.

SYSTEM DESCRIPTION

Piezometer tips

EHP-10/01 Foundation type piezometer tip with ceramic disc filter and two brass compression connectors, as per IS 7356 (part 2) § 4.1.1.

EHP-10/02 Embankment type piezometer tip with two ceramic disc filters and two 45° elbow brass compression connectors, as per IS 7356 (part 2) § 4.1.2.

Plastic tubing

EHP-10/03 Obsolete

EHP-10/04A Nylon 6 twin tubing, each tube with o.d. 6 mm and i.d. 4 mm. The tubing is sealed at both ends with PVC caps to prevent contamination.

Other fittings and accessories

EHP-10/05 Compression type brass couplings to extend the length of the nylon tubing as per IS 7356 (part 2) § 6 figure 4.

EHP-10/06 Brass plug with compression ferrule and nut to plug the nylon tubing.

EHP-10/07 Wooden reel rack to hold coils of twin tubing for ease in laying the tube.

EHP-10/08 Obsolete

EHP-10/09 Obsolete

EHP-10/10 Obsolete

EHP-10/11 Identification tags for twin tubing.

EHP-10/12 Tool kit comprising of set of spanners, 150 mm pliers, fixed wheel tube cutter, hammer, screw driver and 30 m measuring tape.

EHP-10/13 Bentonite clay. During back fill of the trench, a plug 30 cm wide consisting of 5 % bentonite by volume and 95 %

embankment material should be placed at every 15 m distance along the trench.

Manifold system

EHP-10/14-12 Wall mounting manifold system with coupler plugs suitable for 12 piezometers.

EHP-10/14-24 Wall mounting manifold system with coupler plugs suitable for 24 piezometers.



EHP-10/15 Portable vibrating wire pressure sensor of suitable capacity with coupler sockets in carrying case.



EHP-10/16 De-aerated water.

EHP-10/17 Electric water pump

EDI-51V Portable vibrating wire read-out unit/datalogger (refer to datasheet # 1099).

Note: This literature is based on IS 7356 (part 2) which specifies all fittings, valves and gages in metric sizes. However, BSP sizes are prevalent in India. Whenever metric sizes are not available, BSP sizes may be supplied

ENCARDIO-RITE ELECTRONICS PVT. LTD.

A-7 Industrial Estate, Talkatora Road, Lucknow, UP-226011, India

Tel +91 (522) 2661044 Fax +91 (522) 2661043 E-mail sales@encardio.com

Visit us at: www.encardio.com

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