FLUID MECHANICS

DEMONSTRATOR FOR INFILTRATION INTO SOILS

DL DHD011

The **DL DHD011** trainer makes it possible to determine the ease with which a soil lets water pass through it by calculating the permeability coefficient k, applying Darcy's Law.

The experiment is carried out by pumping a stream of water into a small tank at constant load, from which the water flows to a cylinder open at both ends, containing the soil to be analysed.

Once equilibrium is established between the inflow and outflow (overflow), the pressures of the water at the top and bottom of the soil are measured to determine the pressure drop.

Knowing the cylinder cross section, flow rate and pressure drop, Darcy's Law is applied to derive the permeability coefficient of the soil being analysed.

LEARNING OBJECTIVES

- Understand the concept of permeability of a soil and determine its coefficient k through the application of Darcy's Law.
- Determine the void index and porosity of the soil contained within the cylinder before weighing to analyse its physical and structural characteristics.

TECHNICAL DATA

Characteristics of the flow pump for pumping water into the soil:

- Flow rate: 3800 l/h.
- Maximum lifting height: 3,10 m.
- Interchangeable cylinder - 500 mm.
- Water column pressure gauge - 1000 mm.
- Sample collection container - 500 ml.
- Flow opening/closing valve.
- Lower graduated receptacle for determination of flow rate by volumetric method.
- Power supply: single-phase from the mains.

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