



H312

PERMEABILITY, FLOW NETS AND DARCY'S LAW

A self-contained, floor-standing unit consisting of a tank with tapplings connected to a bank of piezometer tubes. It demonstrates flow through permeable media with common structures, such as dams and walls.



KEY FEATURES

- Visualisation and measurement of flow through permeable media
- Dye-injector system to help show flow lines
- Clear plate glass resists abrasion and allows students to see flow patterns
- Includes pressure tapplings and piezometer tubes to measure head distribution
- Plates supplied to simulate models of walls, sheet piling and dams
- Includes adjustable overflow pipes to vary the head across the models
- Self-contained, floor-standing unit – only needs water supply and drain

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DESCRIPTION

The apparatus is a transparent-sided tank, mounted on a steel-framed bench with worktop.

The tank is clear so students can see the flow patterns. The sides are plate glass to resist abrasion from the permeable medium. The rear of the tank contains pressure tappings. Each tapping has filters that stop any unwanted particles. The tappings connect to a bank of piezometer tubes at the side of the apparatus which allow measurement of the head distribution along the tank.

Removable stainless-steel mesh baffles at each end of the tank hold the permeable medium (usually sand) in place. At each side of the baffles are end compartments with adjustable overflow pipes for setting the water levels at each end of the model. The top of the tank is open to allow students to fill the tank and set up model structures. Supplied are clear, self-sealing plates for students to build models of sheet piling, walls and simulated dams.

Included is a dye-injector system to help show flow lines. Around the front edge of the glass tank are scales to help students position and measure flow nets correctly. The self-contained apparatus needs only a mains water supply and drain.

STANDARD FEATURES

- Supplied with a comprehensive user guide
- Five-year warranty
- Manufactured in accordance with the latest European Union directives
- ISO9001 certified manufacturer

RECOMMENDED ANCILLARY

- Permeable Medium (H312a) – Washed sand, graded 0.5 mm to 1.5 mm (nominal 1 mm)

LEARNING OUTCOMES

- Determination of seepage beneath a structure
- Construction of flow nets and determination of coefficient of permeability
- Flow under a sheet pile and determination of critical seepage force at which 'piping' occurs
- Seepage flow under an impermeable dam
- Flow through an earth dam with and without a toe drain
- Drawdown in horizontal flow (simulation of ground water flow into a river or well)
- Determination of uplift pressures on structures such as building foundations
- General studies of seepage and drainage
- Flow through a porous medium (Darcy's law)

ESSENTIAL SERVICES

WATER SUPPLY:

Clean, cold water and drain

SPACE NEEDED:

2.5 m x 1.5 m of solid, level floor

OPERATING CONDITIONS

OPERATING ENVIRONMENT:

Laboratory

STORAGE TEMPERATURE RANGE:

-25°C to +55°C (when packed for transport)

OPERATING TEMPERATURE RANGE:

+5°C to +40°C

OPERATING RELATIVE HUMIDITY RANGE:

80% at temperatures < 31°C decreasing linearly to 50% at 40°C

SPECIFICATIONS

TecEquipment is committed to a programme of continuous improvement; hence we reserve the right to alter the design and product specification without prior notice.

NETT DIMENSIONS AND WEIGHT:

2450 mm x 700 mm x 1500 mm and 230 kg

PACKED DIMENSIONS AND WEIGHT:

4.14 m³ and 430 kg (approx – packed for export)

NOMINAL INTERNAL TANK DIMENSIONS:

1800 mm or 1500 mm between mesh screens x 600 mm high x 180 mm width