SCIENTICO INDIA
Manufacturer & Exporter · Ambala, Haryana, India

PRODUCT DATA SHEET
Catalogue reference for product evaluation

Phone: +91 7015865225 **Email:** info@scienticoindia.com **Web:** scienticoindia.com **Address:** #71, Industrial Area, Ambala Cantt, Haryana, India

Permeability and Fluidization Studies Apparatus – HydraNexis HNX 12

Category: Water Treatment Technology · **Order Code:** HNX 12 · **Country of Origin:** India

Product Overview

The Permeability and Fluidization Studies Apparatus ( ) by SCIENTICO is a laboratory-scale experimental unit designed to study flow through packed beds, permeability, and liquid fluidization behavior of granular media. Made by Scientico India, ISO 9001:2015 certified, and supplied with a calibration certificate and operation manual.

View this product online: https://scienticoindia.com/product/permeability-and-fluidization-studies-apparatus-hydranexis-hnx-12/



Request a model-specific quotation
Include quantity and delivery country.

Technical Specifications

Mechanical & Operational Data

Note: Mercury is not supplied due to export regulations.

Parameter	Specification
Sample Tube Inner Diameter	38 mm
Sample Tube Length	500 mm
Flow Meter Range	50–800 mL/min
Differential Manometer (Water)	0.5 m
Differential Manometer (Mercury)	0.5 m

Parameter	Specification
Temperature Measurement	Mercury thermometer
Bed Materials	Sand, Ballotini, Anthracite (as applicable)

Key Features

Key Features

- Transparent test section for clear observation of packed and fluidized beds
- Demountable sample tube for easy loading and cleaning
- Constant head tank for stable flow conditions and air release
- Manual flow control using needle valve
- Variable area rotameter for flow indication
- Dual differential manometers for low and high pressure drop measurement
- Corrosion-resistant metal fittings
- Fully mechanical operation with no electrical connection required
- Lightweight and portable design

Process Capabilities

- Flow through packed granular beds
- Liquid fluidization studies
- Permeability measurement of granular media
- Pressure drop and hydraulic correlation analysis

Experiments & Learning Outcomes

- Pressure drop measurement across packed beds
- Correlation of experimental data with Darcy’s law
- Verification of Kozeny’s equation
- Study of permeability of granular solids
- Observation of liquid fluidized bed behavior
- Attrition testing of granular materials

Construction & System Design

The HydraNexis HNX 12 is built on a robust metal framework with transparent tubing and test sections for maximum visibility during experiments. All wetted metal components are corrosion-resistant to ensure long service life in laboratory environments. The system’s simple, non-electrical design enhances reliability and makes it suitable for frequent academic use.

Export & Supply Capability

SCIENTICO manufactures the HydraNexis HNX 12 for global academic and laboratory markets. The apparatus is suitable for international supply with standard export packaging, documentation, and optional customization of bed materials as per experimental requirements. Compliance with export regulations is maintained, including exclusion of restricted items such as mercury.

Ordering & Delivery

- Send the product name, quantity, delivery country and destination with your enquiry.
- Production schedule, freight, payment terms and export documents are confirmed in the written quotation.

Frequently Asked Questions

Q1. What is the main purpose of the Permeability and Fluidization Studies Apparatus?
It is used to study flow through granular beds, measure permeability, and observe liquid fluidization behavior under controlled laboratory conditions.

Q2. Which materials can be used as the packed bed?
The unit typically uses sand but can also operate with alternative materials such as Ballotini or anthracite.

Q3. Can both upward and downward flow be studied?
Yes, the apparatus allows water to flow in either direction, enabling packed-bed and fluidized-bed experiments.

Q4. How is pressure drop measured across the bed?
Pressure drop is measured using a 0.5 m water differential manometer or a 0.5 m mercury manometer, depending on the pressure range.

Q5. Does the system require electrical power?
No, the apparatus operates entirely without electrical connections, making it portable and easy to use in teaching laboratories.

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