SCIENTICO INDIA
Manufacturer & Exporter · Ambala, Haryana, India

PRODUCT DATA SHEET
Catalogue reference for product evaluation

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Cake & Depth Filtration Trainer | ProzessiX PX-01

Category: Process Engineering Technology · **Order Code:** PX-01 · **Country of Origin:** India

Product Overview

The Cake & Depth Filtration Trainer is a laboratory-scale process engineering equipment designed to demonstrate depth filtration, cake formation, and filter backwashing in water treatment systems. 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/cake-depth-filtration-trainer-px-01/



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

Technical Specifications

Parameter	Specification
Model	PX-01
Process	Depth filtration and backwash
Filter Inside Diameter	Approx. 40 mm
Total Filter Height	80 mm
Maximum Filter Bed Height	Approx. 60 mm
Flow Rate Range	Up to 50 L/h
Inverted U-Tube Manometer Range	0 to 700 mm WC
Filter Bed Height Measurement	0 to 60 mm
Thermometer Range	10 °C to 100 °C
Valves	4 Ball Valves
Flow Measurement	Rotameter
Pressure Measurement	Differential pressure and inverted U-tube manometers
Flow Velocity	Adjustable
Supply Unit	Separate tank and pump for raw water
Backwash System	Dedicated pump for backwashing

Parameter	Specification
Scope of Delivery	1 Experimental unit, 1 Instruction manual

Key Features

Key Features

- Demonstration of cake and depth filtration processes in a transparent laboratory setup
- Visualization of pressure distribution along the filter bed
- Inverted U-tube manometers for accurate pressure measurement
- Capability to plot Micheau diagrams for hydraulic analysis
- Adjustable flow velocity for permeability and pressure loss studies
- Integrated rotameter for measuring filtration flow rate
- Dedicated pump for backwashing and restoration of filter performance
- Direct observation of fluidization and filter bed expansion
- Measurement of flow rate, differential pressure, system pressure, and temperature
- Sampling capability at relevant system point

Applications

- Chemical engineering laboratory experiments on solid-liquid separation
- Water and wastewater treatment training modules
- Study of Darcy’s law and pressure drop behavior
- Determination of filter bed permeability
- Fluidization and bed expansion studies
- Pilot plant system demonstrations for process engineering education

Construction & System Design

The Cake & Depth Filtration Trainer is designed as a compact vertical filtration unit suitable for laboratory and pilot-scale applications. The filter column includes a visible scale for reading filter bed height and expansion during backwashing.

Multiple pressure tapping points are installed along the filter bed and connected to inverted U-tube manometers using flexible hoses. This allows clear visualization of pressure gradients as water column differences. A differential pressure gauge provides additional monitoring of overall pressure drop.

The system includes a separate supply unit with tank and pump for raw water circulation, along with a dedicated pump for backwashing operations. Four ball valves allow flexible control of flow paths. The rotameter ensures reliable monitoring of filtration flow rate. The construction supports repeated academic use and clear demonstration of filtration dynamics.

Export & Supply Capability

The PX-01 Cake & Depth Filtration Trainer is manufactured by SCIENTICO for supply to domestic and international institutions. The system is suitable for export to engineering colleges, universities, pilot plants, and industrial training centers.

Standard delivery includes the experimental unit and a detailed instruction manual covering operation and experimental procedures. The unit is prepared for safe packaging and transport. Documentation support is provided for institutional procurement and international supply requirements.

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 does the Cake & Depth Filtration Trainer demonstrate?
It demonstrates the principles of depth filtration, cake formation, pressure drop development, permeability, and backwashing in water treatment processes.

Q2. How is pressure measured in the filter bed?
Pressure is measured using multiple tapping points connected to inverted U-tube manometers and a differential pressure gauge, allowing visualization of pressure distribution and total pressure loss.

Q3. What is a Micheau diagram and why is it important?
A Micheau diagram shows the pressure variation along the height of a filter bed. It helps analyze hydraulic resistance and understand filtration behavior under different operating conditions.

Q4. What experiments can be performed with this trainer?
Experiments include studying pressure conditions, verifying Darcy's law, determining permeability, measuring flow rate, observing fluidization, determining bed expansion, and calculating fluidization velocity.

Q5. How is the filter bed cleaned after operation?
The filter bed is cleaned by backwashing with treated water using a dedicated pump. This reduces accumulated solids and restores filtration performance.

Q6. Who is this system suitable for?
The system is suitable for chemical engineering departments, process engineering laboratories, pilot plants, and industrial training centers focused on solid-liquid separation and water treatment processes.

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