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Manufacturer & Exporter · Ambala, Haryana, India

PRODUCT DATA SHEET
Catalogue reference for product evaluation

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Batch Distillation Column Apparatus | OperatiX - 04

Category: Unit Operations · **Country of Origin:** India

Product Overview

The Batch Distillation Column Apparatus OperatiX - 04 separates ethanol and water mixtures through batch rectification. This Batch Distillation Column Apparatus features an electrically heated evaporator, coiled condensers, and adjustable reflux ratio control. It supports vacuum mode operation and works with interchangeable optional column types. Optional DAQ software enables measurement and calculation of results.

View this product online: https://scienticoindia.com/product/batch-distillation-column-apparatus-operatix-04/



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

Technical Specifications

Batch Distillation Column Apparatus OperatiX - 04, Technical Specifications

Specification	Detail
Process	Batch rectification with different types of columns available as optional
Evaporator	Electrically heated, infinitely varied power
Tanks	Feed and top product tanks
Product Cooler	Coiled condenser
Top Product Condensing	Coiled condenser and phase separation tank
Tank Materials	All tanks made of glass and stainless steel
Reflux Ratio Adjustment	Using valves
Vacuum Mode	Possible with vacuum pump
Temperature Sensors	Different sensors per column
Pressure Gauge	Measures the vacuum in the system

Technical Data

Feed Pump

Parameter	Value
Max. flow rate	400mL/min

Parameter	Value
Speed	Variable

Vacuum Pump

Parameter	Value
Final vacuum	200mbar

Tanks

Parameter	Value
Feed	approx. 10L
Boiler	approx. 7L
Top Product tank	approx. 5L
Phase separation tank	approx. 0.5L

Condenser

Parameter	Value
Top product condenser material	Glass
Top product condenser type	Shell and coiled
Product cooler condenser material	Glass
Product cooler condenser type	Shell and coiled

Rotameter

Parameter	Value
Top Product condenser	1~7lpm
Product cooler	1~7lpm

Measuring Ranges

Parameter	Value
Temperature	-100~400°C
Reflux ratio	0~100%
Heating power	0~2kW
Column differential pressure	0~250mbar
Cooling water flow rate	1~7lpm
System pressure gauge	-1~1bar

Key Features

Key Features

- **Process Type:** batch rectification, using ethanol and water as the recommended mixture
- **Evaporator:** electrically heated, infinitely varied power
- **Vacuum Mode:** possible with vacuum pump, final vacuum 200mbar
- **Reflux Ratio Control:** adjustable via valves, range 0~100%
- **Tank Materials:** all tanks made of glass and stainless steel
- **Condensers:** coiled, shell and coiled type, glass material

- **Optional Columns:** interchangeable column types available for this Batch Distillation Column Apparatus
- **Data Recording:** optional software records and saves data on PC via USB/LAN
- **Software:** optional DAQ software for measurement and calculation

Experiments

- Investigation of different types of columns: in batch mode, in vacuum mode, with different reflux ratios
- Energy efficiency increase due to feed preheating
- Determination of concentration profiles
- Determination of temperature profiles
- Pressure loss over the column

Construction and Design

The Batch Distillation Column Apparatus OperatiX - 04 is built around an electrically heated evaporator with infinitely varied power. A feed pump delivers flow at a maximum rate of 400mL/min at variable speed. Feed, boiler, top product, and phase separation tanks are made of glass and stainless steel, with capacities of approximately 10L, 7L, 5L, and 0.5L respectively. A coiled condenser cools the product, while a separate coiled condenser and phase separation tank condense the top product. Rotameters measure flow at the top product condenser and product cooler, each ranged 1 to 7lpm. Reflux ratio is adjusted using valves. A vacuum pump enables vacuum mode operation, reaching a final vacuum of 200mbar. Different temperature sensors are fitted per column, and a pressure gauge measures the vacuum in the system.

Software

Software OperatiX - 04 (optional). DAQ software specially designed in National Instrument™, LABVIEW™ environment to measure and calculate the results of the apparatus. The software is optional; a set of electronic sensors is included when the software is used. The software can be run in any Windows™ environment.

Scope of Delivery

- 1 Experimental unit
- 1 Set of hoses
- 1 Set of accessories (tools, seals)
- 1 Instruction manual

Optional Accessories

- Sieve tray column, OperatiX - 07
- Packed Column, OperatiX - 15
- Bubble cap tray column, OperatiX - 08
- Valve tray column, OperatiX - 14
- Structured Packing Column, OperatiX - 09

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

Q: What is the Batch Distillation Column Apparatus OperatiX - 04 used for?
A: It is used to separate liquid mixtures of distinct, mutually soluble liquids via batch distillation, using ethanol and water as the recommended mixture.

Q: Can the system operate under vacuum?
A: Yes, vacuum mode is possible with a vacuum pump, reaching a final vacuum of 200mbar.

Q: What types of columns are available for this apparatus?
A: Optional columns include the Sieve tray column (OperatiX - 07), Packed Column (OperatiX - 15), Bubble cap tray column (OperatiX - 08), Valve tray column (OperatiX - 14), and Structured Packing Column (OperatiX - 09).

Q: Is data acquisition software available with this system?
A: Yes, Software OperatiX - 04 is available as an optional add-on, designed in National Instrument™ LABVIEW™ environment, and

can run in any Windows™ environment.

Q: How is the reflux ratio adjusted?

A: The reflux ratio is adjusted using valves, with a measuring range of 0 to 100%.