SCIENTICO INDIA
Manufacturer & Exporter · Ambala, Haryana, India

PRODUCT DATA SHEET
Catalogue reference for product evaluation

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Gas Absorption/Desorption Column Apparatus | OperatiX - 12

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

Product Overview

The Gas Absorption/Desorption Column Apparatus OperatiX - 12 studies mass transfer between gas and liquid phases using a CO2/air mixture and water solvent. This Gas Absorption/Desorption Column Apparatus features a glass, Raschig-ring-packed absorption column paired with a vacuum-operated desorption column for solvent regeneration. It includes continuous pressure, temperature, and flow rate monitoring with liquid and gas sampling outlets. Optional accessories include a water chiller and DAQ software for data measurement and calculation.

View this product online: https://scienticoindia.com/product/gas-absorption-desorption-column-apparatus-operatix-12/



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

Technical Specifications

Gas Absorption/Desorption Column Apparatus OperatiX - 12, Technical Specifications

Specification	Detail
Process	Absorption in counterflow with water for the separation of the CO2/air combination
Gas Mixture Production	Utilizing CO2 from compressed gas cylinders and outside air
Mixing Ratio	Valve-based adjustment
Gas Delivery	Compressor delivers gas mixture into the absorption column
Column Packing	Raschig rings packed inside a glass absorption column
Solvent Regeneration	Continuous, in vacuum-sealed circuit with desorption column
Absorption Column Pump	Separate pump
Hot Water Temperature	Heater-controlled
Cold Water Temperature	Chiller control (optional)

Technical Data

Absorption Column

Parameter	Value
Internal diameter	100mm approx.
Height	2x 750mm

Parameter	Value
Material	Glass

Packing

Parameter	Value
Type	Raschig ring
Material	Glass
Diameter	10mm
Height	10mm

Feed Pump (absorption)

Parameter	Value
Max. flow rate	10L/min
Max. head	10m

Feed Tank

Parameter	Value
Capacity	50L
Heater	500W

For Air and CO2

Parameter	Value
Type	Plate type
Material	Stainless steel

Pressure Sensor

Parameter	Value
Type	Differential
Range	-50~50kPa
Qty	2

Measuring Ranges

Parameter	Value
Air flow rate	Approx. 0.25~2.5m³/h
Solvent flow rate	1~7lpm
CO2 flow rate	0.1~1m³/h
Temperature	3x -100~400°C
Pressure	1x 0~2.5bar
Differential pressure	2x -25~25kPa
CO2 concentration sensor	0~99%

Key Features

Key Features

- **Absorption Column:** glass, 100mm internal diameter, 2x 750mm height
- **Packing:** Raschig rings, glass, 10mm diameter x 10mm height
- **Gas Mixture:** CO2 from compressed gas cylinders and outside air, valve-adjustable mixing ratio
- **Solvent:** water, continuously regenerated in a vacuum-sealed circuit with desorption column
- **Temperature Control:** heater-controlled hot water, optional chiller for cold water
- **Pressure Monitoring:** 2 differential pressure sensors, range -50~50kPa
- **Sample Outlets:** liquid and gas sample collection points included
- **Feed Pump:** 10L/min max. flow rate, 10m max. head
- **Feed Tank:** 50L capacity with 500W heater
- **Software:** optional DAQ software for measurement and calculation on this Gas Absorption/Desorption Column Apparatus

Experiments

- Investigation of the absorption process in a packed column for separating gas mixtures
- Calculating pressure losses throughout the column
- An operating diagram that depicts the absorption process
- Research into the factors that affect how well absorption works

Construction and Design

The Gas Absorption/Desorption Column Apparatus OperatiX - 12 is built around a glass absorption column, 100mm internal diameter, in two 750mm sections. The column is packed with glass Raschig rings, 10mm in diameter and 10mm in height. A compressor delivers the gas mixture into the lower part of the absorption column. A separate feed pump supplies solvent at a maximum flow rate of 10L/min and a maximum head of 10m. A 50L feed tank with a 500W heater supplies water to the system. Plate type, stainless steel units handle air and CO2. Two differential pressure sensors, ranged -50 to 50kPa, monitor pressure loss across the column sections. A desorption column, operating under vacuum, separates absorbed CO2 from the charged water for solvent regeneration. Outlets are provided for collecting liquid and gas samples.

Software

Software OperatiX - 12 (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 Instruction manual

Optional Accessories

- **Water Chiller, OperatiX-12-1:**
  - Compressor: max. positive pressure 1bar, max. flow rate 2m³/h
  - Condenser: for feed water, shell and tube type, stainless steel material

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 Gas Absorption/Desorption Column Apparatus OperatiX - 12 used for?
A: It is used to study mass transfer from a gaseous phase to a liquid phase (absorption) and the reverse process (desorption), using a CO2/air gas mixture and water as the solvent.

Q: What packing material is used in the absorption column?
A: The absorption column is packed with glass Raschig rings, 10mm in diameter and 10mm in height.

Q: How is the CO2 separated from the solvent?

A: The charged water is supplied to a desorption column, where a vacuum pump creates negative pressure, causing the CO2 gas to escape from the water. The regenerated solvent is then pumped back into the absorption column.

Q: Is a water chiller available for this system?

A: Yes, a Water Chiller, model OperatiX-12-1, is available as a recommended optional accessory for cold water temperature control.

Q: Is data acquisition software available with this system?

A: Yes, Software OperatiX - 12 is available as an optional add-on, designed in National Instrument™ LABVIEW™ environment, and can run in any Windows™ environment.