

### Features

- Mobile, compact, comprehensive, sturdy design.
- Fully instrumentation for experimentation of Double pipe heat exchanger.
- Direct reading of temperature, voltmeter and ammeter measurement.

Packed columns have a variety of uses in process engineering, waste water and air purification and in biotechnical systems. For example, in an adsorption column the two substances can be brought into close contact using the packing. When used as a fixed bed reactor, the packing carries the catalyst necessary for the reaction. Packing is available in the widest variety of shapes and materials.

Observing the desired flow conditions is vital for proper functioning. Wetting, contact time and flow resistance play a key role. These packed column properties can be studied with the 32370 trainer, and important phenomena such as the wall effect or the flooding point can be demonstrated. The central element of the trainer is the transparent packed column. The pressures in the top, middle and bottom of the column are measured, so that the pressure losses in the fixed bed can be determined. The column can be operated with water or water and air. When operating with water, the direction of flow can be changed, so that even a fully flooded column can be studied, such as in a fixed bed reactor. Operating the column with water and air in counter-flow simulates the application as an absorption column. The packed bed is interchangeable, so that a laboratory's own packing can also be tried out.

The experimental unit has its own air and water supply. The closed water circuit consists of storage tank, pump, flow meter and valve. The air supply includes a compressor with flow meter and valve.

### Specifications

- Trainer for studying the flow in packing layers
- Transparent DURAN glass packed column with interchangeable packed bed
- Operation with water or water and air
- Water-air operation in parallel flow or counter-flow
- Water direction of flow can be reversed
- Closed water circuit with a pump and storage tank
- Compressor for air supply
- Measurement of flow rate and pressure loss

### Technical Specifications

- Pump
  - Max. flow rate: 18L/min
  - Max. head: 45m
  - Power consumption: 250W Compressor
  - Max. volumetric flow rate: 8m<sup>3</sup>/h - max. pressure: 1bar rel.
  - Power consumption: 370W Packed column
  - Inner diameter: 80mm
  - Length: 2x 500mm
  - Packing height: approx. 350mm
- Storage tank: 55L
- Measuring ranges
  - Flow rate (air): 1...10m<sup>3</sup>/s
  - Flow rate (water): 50...600L/h
  - Differential pressure: 2x 0...100mbar, 1x 0...300mbar

### Experiments

- Function of a packed column - compare operating modes
  - With water

Note: Specifications are subject to change.

### Tesca Technologies Pvt. Ltd.

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- Water-air operation in parallel flow \* water-air operation in counter-flow
- Demonstration of \* wall effect
  - Stream formation \* loading point
  - Flooding point
- Hydraulic characteristics
  - Pressure loss diagram \* holdup diagram

#### **Operation & Maintenance Manual**

Self-explanatory operating & maintenance manual will be provided. This will include Theory, operating procedure, standard results, and maintenance procedures.

#### **Requirement**

- 220-240V, 50Hz, 1 phases

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