

DEMONSTRATION OF GAS-LIQUID ABSORPTION



Experimental capabilities

- Identification of components of a gas-liquid absorption plant
- Installation commissioning
- Study of the gas/liquid absorption process
- Study of the efficiency of the column
- Material balance

Operating principle

The GPCA40 bench allows the study of gas-liquid absorption.

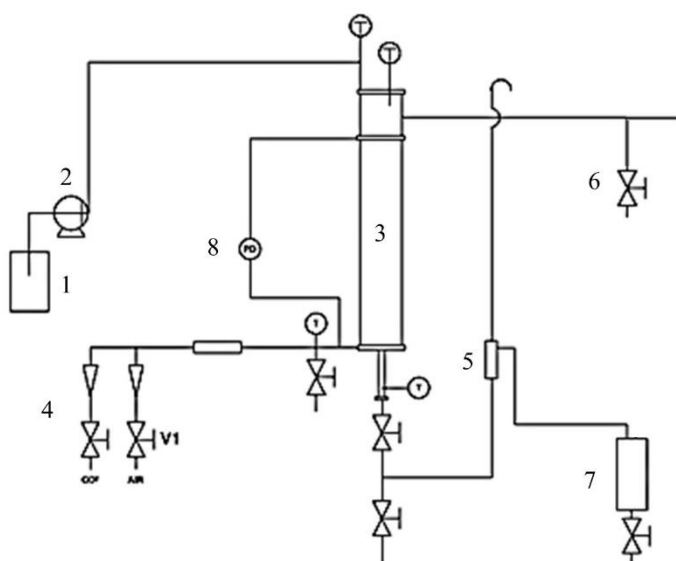
The mixture to be separated will be composed of air and carbon dioxide (CO₂). The mixture will be fed into the bottom of the column. The solvent allowing the separation will be water. The solvent will be fed from the top of the column. The mixture and the solvent will intersect within the column. The solvent will trap the CO₂ molecules therefore, at the top of the column, will recover the purified air, and at the bottom is recovered a mixture of water and CO₂.

The robust design of this device makes it suitable for use in schools.

The equipment is set up on an Anodized aluminium frame on casters wheels. This gives it great strength and a flexibility of integration into your premises. The manufacture of this equipment complies with the European standard for machinery manufacturing.

Illustrations

Technical details



The bench is installed on an aluminum profile structure equipped with four directional brake casters.

It has an electrical box with general power disconnector and 30mA differential circuit breaker.

1. Solvent input tank

- Material: Polypropylene
- Volume: 20 L
- Drain valve

2. Peristaltic liquid feed pump

3. Absorption column

- Material: Borosilicate glass
- ND: 50 mm
- Length: 1000 mm
- Packing: glass Rashig rings

4. Float flowmeters with control valve

- Air: 0-25 L/min
- CO₂: 0-11 L/min
- a static mixer optimizes the mixing of gases

5. Level overflow

- Material: Borosilicate glass

6. Gas outlet with sampling valve

7. Rich solution collection tank

- Material: Polypropylene
- Volume: 20 L
- Drain valve

8. Differential pressure sensor with isolation valves

Integrated instrumentation:

- thermocouple temperature probes T (X4
 - Differential pressure sensor on the column
- The measurements are displayed on a 7" color touch screen.

Services required

Documentation

- Electrical supply: 230Vac – 50 Hz – 16 A
- Electrical network: 1 phase + Neutral + Earth.
- Compressed air supply: 6-8 bars (dry air)
- Dimensions: (LxHxW mm): 1600 x 700 x 1700
- Poids (Kg): 110

- User's manual
- Technical documentation of the components
- Lab exercises
- Electrical diagram
- Hydraulic diagram
- Certificate of conformity CE

Note: if the equipment installation is operated by our staff, all supplies and exhaust connections required must stand at less than 2m from the machine