

NORMAG Training Unit for Absorption / Desorption

- customer and application specific design and software
- operation at various pressures, temperatures and dwell times possible
- process display
- the unit can be supplied in various sizes in line with customer requirements
- optional switch cabinet with display, control and regulation options and protective circuits
- optional operator terminal with PC and graphical user interface for unit control
- compact unit design, mobile version

NORMAG training units facilitate modern and practical training. In the absorption and desorption unit, a search is performed in the system for water containing CO₂.

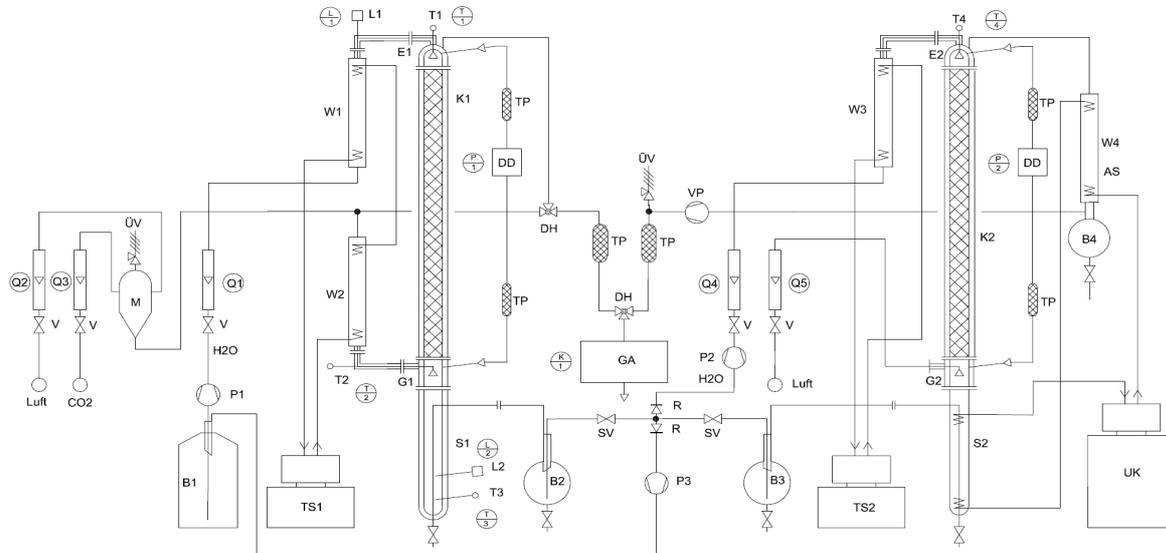
Absorption takes place in the first unit section, i.e. the absorption of gases in a rinsing fluid by means of physical dissolution, or a reversible chemical reaction (physical and/or chemical absorption). When an air/CO₂ mixture is brought into contact with water, the CO₂ is absorbed by the water, whereas only minor, and in this case, negligible air volumes are dissolved. The absorption capacity of water for carbon dioxide is dependent on the reaction time, the pressure and the temperature.

Desorption takes place in the second part of the unit as the reverse procedure to absorption. The CO₂ contained in the water is absorbed by the air fed by the counterflow from the rinsing fluid.

The unit is supplied fully preassembled and tested.



NORMAG Training Unit for Absorption / Desorption



Absorption:

The absorption unit consists of the absorption column (K1) with a silver metallised high-vacuum jacket, a gas (G1) and a liquid feed line (E1) and a siphon section (S1). CO₂ and air are mixed together in the mixer (M) and fed into the column via the heat exchanger (W2). In the counterflow, the absorption liquid is supplied to the column via the pump (P1) and the heat exchanger (W1). The heat exchangers (W1 and W2) are tempered by the thermostat (TS1). The escaping gas is analysed by the gas analyzer (GA).

Desorption:

The desorption unit consists of a column (K2) with a gas line (G2) and a liquid line (E2) and a siphon (S2) with an inner cooling coil, which is connected to the recirculating cooler (UK). The water charged with CO₂ is pumped into the column via pump (P2) from vessel (B2) via the heat exchanger (W3), which is tempered by the thermostats (TS2) and accumulates in the siphon (S2). Here, the water is cooled and is pumped into the collection vessel (B1) via the holding tank (B3) and pump (P3). Air is fed into the desorption column in the counterflow to the escaping water by the gas line (G2).

The air charged with CO₂ exits the desorption column at the head and enters the cooled separator (W4) with collection flasks for the condensed fluid. A vacuum pump (VP) is installed downstream of the separator for adjustment of a specific vacuum pressure and to set the gas analyser (GA).

The process data for temperature (T), electrical conductivity (L), differential pressure (DD) and gas concentration are recorded by a data logger. This data can be output and evaluated as diagrams or tables according to operator requirements using a PC with the corresponding software.

Technical specification:

Materials coming into contact with products:	Borosilicate glass, PTFE, PVDF, PP
Absorption/desorption column:	DN 30 – DN 150
Process temperatures:	0...150 °C
Process pressures:	-1 / + 0.5 barg
Dimensions:	According to column dimensions
Power:	
Electrical power:	230/400 VAC, 50/60 Hz