

DEMONSTRATION BENCH OF CONTINUOUS DISTILLATION



Experimental capabilities

- Study of the process
- Thermal and materials balance
- Determination of the number of theoretical plates by McCabe and Thiele construction
- Effectiveness of the column

Operating principle

The GPCD15 bench allows the study of continuous distillation.

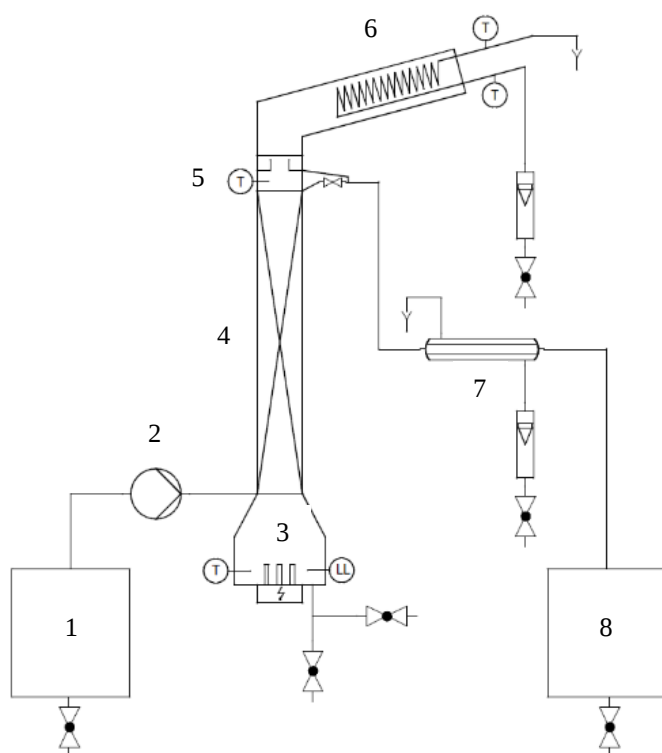
The mixture to be separated will be composed of ethanol and water. The mixture is transferred to the boiler, which consists of 4 heating resistors. The resistors will allow to bring the mixture to a boil, therefore, to evaporate and recover ethanol which has the lowest boiling temperature.

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



1. Supply tank

- Material: polyethylene
- Volume: 10 L
- Drain valve

2. Supply dosing pump

- $Q_{max} = 12 \text{ L/h}$
- $P_{max} = 2 \text{ bar}$

3. Boiler

- Material: borosilicate glass
- DN 100 mm
- Length: 300 mm
- Volume: 2 L
- Heating cartridges $P = 1.2 \text{ kW}$
- Temperature probe Pt 100
- Drain valve
- Level sensor for cutting heat

4. Distillation column

- Material: borosilicate glass
- DN 50 mm
- Length: 500 mm
- Filling: Raschig rings glass

5. Manual reflux head

- DN 50 mm
- Length: 150 mm
- Temperature probe Pt 100
- Manual needle valve

6. Condenser

- Material: borosilicate glass
- DN 50 mm
- Length: 300 mm
- Cooling coil in stainless steel: $S = 0.05 \text{ m}^2$
- Temperature probes Pt 100 at the inlet and outlet of the cooling coil

7. Distillate cooling exchanger

- Material: borosilicate glass
- Double wrapped mono tube exchanger

8. Receiver

- Material: polyethylene
- Volume 5 L
- Drain valve

Services required

Documentation

- Electrical supply: 230 Vac – 50 Hz – 16 A
- Electrical network: 1 phase + Neutral + Earth
- Water supply: 15 L/min – 2 bars
- Water drain: on the floor
- Dimensions: (LxWxH mm): 1650 x 700 x 1800
- weight (Kg): 110

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

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

Illustrations



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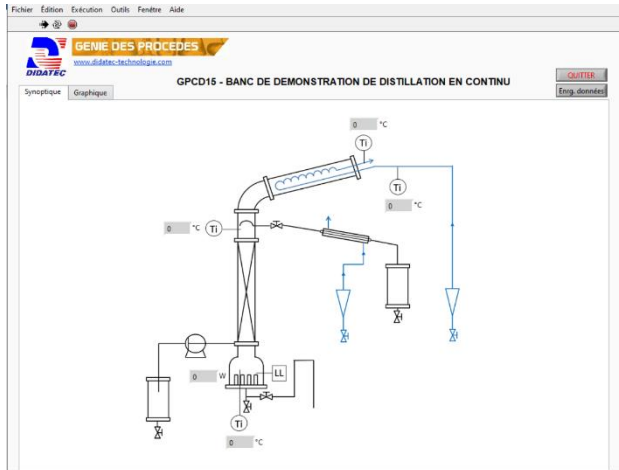
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version : FT-GPCD15-STD-B

Data acquisition system

The bench is also equipped with supervision. The connection to the PC is made via Wi-Fi. The software is divided into two parts:

Diagram:



We find in this window the synoptic of the machine with the location of the various measures of the process and their values

Graph:

In this graphic window, we find the possibility of drawing measurement curves as a function of time by selecting the desired magnitudes and saving the measurements

