

# CONTINUOUS DISTILLATION

**REFERENCE : MP1010**



*Non contractual photo*

**SERVICE : 230 V / 50 HZ / SINGLE PHASE: 4 KW. COLD WATER 20 ° C / 3 BAR: 1 M3 / H. SEWER.**  
**DIMENSIONS : 1,55 M X 0,65 M X 3,05 M**

**WEIGHT : 180KG**

## Principle of operation :

Distillation allows the separation of a mixture of compounds having different boiling points. The boiling of the mixture makes it possible to obtain vapors of compositions different from the liquid. Re-condensations and multiple re-evaporations progressively enrich the vapor phase to the most volatile product. The vapors are condensed and then distributed between the distillate and the reflux via a column head valve.

## Educational Objectives :

### Educational goals :

- Study of the hydrodynamics of the column.
- Influence of the operating conditions on the separation of a binary solution
- Thermal balances.
- Material balance.
- Determination of the number of theoretical plates (McCabe and Thiele, Ponchon and Savart).
- Determination of the number of transfer units

## Technical specifications :

- Storage can of the polyethylene feed solution.
- Feeder dosing pump.
- Preheater with two valves for supply at 33% or 66% of the column,
- Continuous boiler in borosilicate glass, electric heating, equipped with minimum safety level and maximum temperature safety.
- Refrigerant for differential pressure test.
- Column in borosilicate glass, in three elements with lining.
- Three stainless steel 316L recentering trays, each equipped with sampling and temperature sampling valve.
- Borosilicate glass column head, with temperature measurement, equipped with a timer valve to control the reflux ratio.
- Vertical 316L stainless steel condenser, borosilicate glass ferrule.
- Two refrigerants of distillate and residue in 316L stainless steel.
- Recipe for borosilicate glass distillate.
- Recipe of the borosilicate glass residue, equipped with a 316L stainless steel drain valve.
- Two containers for receiving the distillate and the polyethylene residue
- 316L stainless steel connection pipes.
- Support frame in 304L stainless steel tubes and aluminum nuts.

### Instrumentation :

- Condenser cooling water supply equipped with a float flowmeter with its control valve and a water circulation controller to stop heating due to lack of cooling.
- Column pressure drop measurement using a "U" differential pressure

gauge.

- Control and control cabinet, IP55, equipped with emergency stop, operating buttons and the following interfaces:
- Preheater temperature controller.
- Electronic timer controlling the valve of the column head.
- Boiler heating control regulator.
- Two digital temperature indicators of 12 probes type Pt100 ?.

### **OPTIONS :**

Touch screen to view temperatures and control the regulators. With data storage and data recovery on USB stick in .txt files.