

## SYNTHETIC UNIT OF SYNTHESIS 25 LITERS

**REFERENCE : MP1074**

*Non contractual photo*

**SERVICE : 400 V / 50 HZ / THREE PHASE + N: 1 KW. COLD WATER 20 ° C / 3 BAR: 1 M3 / H. EMPTY 20 MBAR: 50 NM3 / H STEAM 6 BAR: 10 KG / H. SEWER FOR HEATING CONDENSATES.**

**DIMENSIONS : 2,60 M X 1 M X 3,85 M**

**WEIGHT : ~ 450 KG**

The reaction is a fundamental operation of the chemical industry, making it possible to produce, from simple molecules (reagents), more and more complex compounds intended for a growing number of industries (chemistry, pharmacy, etc.). The reactor is of the perfectly stirred type and operates discontinuously: the quantity of reagent is introduced at the beginning of the handling at one time or controlled as a function of time. The reaction mass is brought to the required temperature. The reactor also makes it possible to make "batch" crystallizations and then to separate the crystals from the mother liquors by filtration.

### Educational Objectives :

- Study of simple reactions.
- Study of evaporation.
- Crystallization by evaporation, chemical reaction or cooling.
- Total reflux reactions.
- Discontinuous distillation with partial condensation.
- Discontinuous distillation under reduced pressure.
- Material balance.
- Yields.
- Thermal balance.

### Technical specifications :

#### Equipment

- Storage reagent recipe in borosilicate glass, graduated with "juice elevator" system for filling reagents.
- Frustoconical reactor: double steam heating jacket, flush drain valve, operator protection panel.
- Fixed speed stirring set in 316L stainless steel with "V" anchor.
- 316L stainless steel column in one element with 316L stainless steel lining.
- Partial, vertical condenser, multitubular type.
- Condenser.
- Refrigerant.
- Recipes of borosilicate glass distillate, graduated.
- Circuit for relaxing and adjusting the heating steam with operator protection panel.
- 316L stainless steel connection pipes.
- 316L stainless steel piping for reduced pressurization of the different subassemblies on the main manifold.
- Vacuum trap made of borosilicate glass.
- 316L stainless steel vent lines for the different sub-assemblies on the main manifold towards the central suction.
- Working document desk in 316L stainless steel, A3 format.
- Support frame in 304L stainless steel tubes.

## Instrumentation

- Partial condenser cooling water supply equipped with a float flowmeter with its control valve.
- Total condenser cooling water supply equipped with a float flowmeter with its control valve and a water circulation controller for heating shutdown due to lack of cooling.
- Reactor cooling water supply equipped with a float flowmeter with its control valve.
- Column pressure drop measurement using a "U" differential pressure gauge.
- Measurements of the supply pressure of the heating steam by manometers.
- Reagent supply flow measurement by float flowmeter.
- Reflux flow and distillate flow measurements by float flowmeters.
- Reactor and pilot pressure measurements by manometers.
- Control and control cabinet, IP55, equipped with emergency stop, operating buttons and the following interfaces:
- Two digital temperature indicators of eight probes type Pt100 ?.

## OPTIONS :

Option: Reduced pressure bag filter in 316L stainless steel; capacity 20 liters (cake) + 20 liters (filtrate)