GPB UM1

DIDATEC TECHNOLOGIE

Ultrafiltration-Microfiltration

DESCRIPTION

- **Allows the study of a system of filtration (microfiltration or ultrafiltration) upon a diaphragm.**
- **Process of membranous segregation by the action of a pressure gradient which retains particles and macromolecules that are dissolved in a fluid.**
- **The equipment runs in continuous way.**

- **The unit is delivered fully instrumented together with technical and pedagogic documentation.**

PEDAGOGIC APPLICATIONS

- Clarification of wine, clarification of fruit juice
- Study of the process of ultrafiltration
- Determination of the various phases of ultrafiltration and microfiltration
- Determination of retention rate of the diaphragm
- Influence of the speed of supply
- Material balance
- Flow speed : verification of the DARCY law
- Study of the permeability of the modulus
- Comparison and industrial purpose of the two modulus

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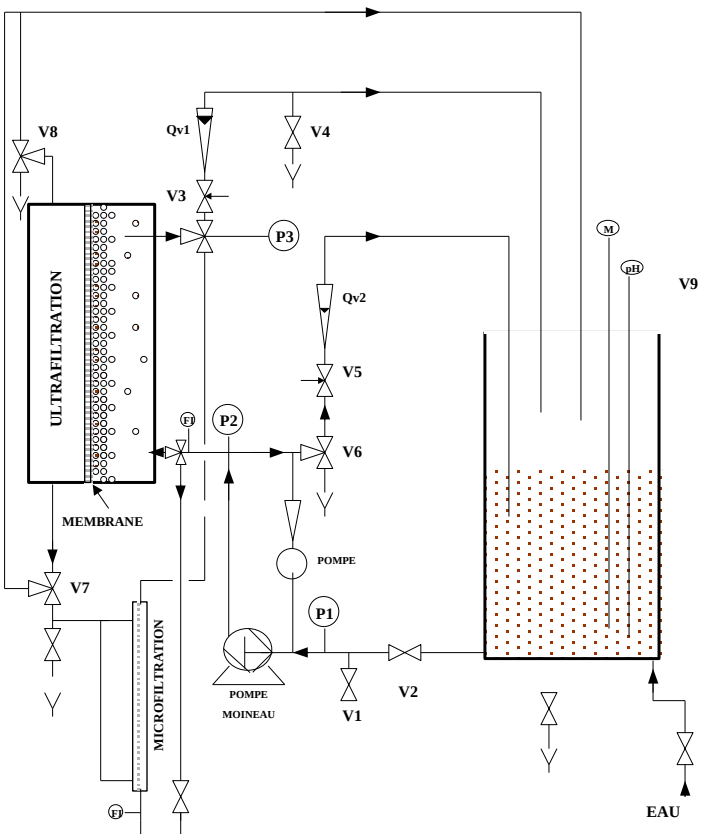
PRINCIPLE SCHEME



INSTRUMENTS

- 3 pressure sensors

Accuracy ±1% - range 0-5 bars

- 3 stainless steel rotameters:
  - 40-400 l/h for the alimentation
  - 0-4000 l/h for the filtration loop
  - 0-250 l/h for the "retained"
  - 0-250 l/h for the "filtered"
- Frequency variator for the pump allowing the regulation of the flow rate
- 1 Pt 100 with display
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ARMOIRE ELECTRIQUE

- OFF/ON switch for the pump
- With all the need elements for a good working and the safety of the equipment : cut out…
- Main switch with a low-tension indicator
- Emergency switch, differential circuit breaker mA

Utilities

Electricity : 230 V- 50/60Hz - 16 A

Evacuation

1- Helicoidal rotor pump
   - P_{maxi} = 3 bar – stainless steel
   - With speed variator
   - P = 0,55 kW
   - Flowrate : 2m3/h
2- Centrifugal pump
   - P_{maxi} = 3 bar – stainless steel
   - P = 0,37 kW
   - Flow rate : 5 m3/h
3- Supplying tank
   Made of P.E.H.D., Volume 20 l
   Equipped with an electric shaker with variable speed.(0-1000 rpm.)
   Equipped with a resistance made of 304l stainless steel - 3 kW
4- Ultrafiltration modulus : planned modulus with organic diaphragm, S=200 cm² **and**
   Microfiltration modulus : tubular modulus with mineral diaphragm, S= 200 cm²,
5- Filter for the network water through the exchanger

   - QV1 = recycled
   - QV2 = recirculation – valves
   - V1 = draining of the supplying tank
   - V2 = pump supply
   - V3 = adjustment of the recycled
   - V4 = low point upon recycled
   - V5 = Adjustment of the recirculation
   - V6 = 3-ways valve for the insulation of the diaphragm
   - V7/V8 = adjustment of the flow rate of the "perméat"
   - V9 = Water supply for the tank
   - V10 = water supply for the exchanger
   - P1 = pressure at aspiration
   - P2 = pressure at the diaphragm inlet
   - P3 = pressure at the diaphragm outlet (recycled side)

5- Pipes : 316 l-stainless steel, PVC (foods quality)

SPECIFICATIONS

Dimension of the fluid : between 2nm and 0,1 µm for the UF
between 0,1 µm and 20 µm for the MF

DIMENSIONS

Length : 800 mm
Width : 1100 mm
Height : 1500 mm
Weight : 75 kg