

REVERSE OSMOSIS WITH SOFTENER UNIT OSMOSIS WITH SOFTENER UNIT



Experimental capabilities

- Identification of the components of a treatment module by reverse osmosis
- Study of a water softener (programming, hardness test)
- Study of the characteristics of the module of reverse osmosis
- Determination of the osmotic pressure of an aqueous liquid (network water or salt water)
- Determination of the membrane retention rate

Operating principle

The GPB OS1 bench can show students the characteristics of a reverse osmosis unit and study the different parameters, determine the quality of the water.

The practical implementation is carried out using a softened raw water and a saline solution and it is proposed to determine:

The osmotic pressure for the studied solution

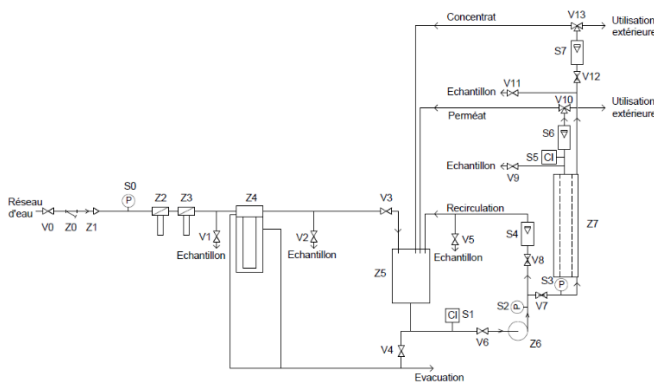
This study allows students to become aware of the conditions of reverse osmosis operations in industrial production.

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



The bench has a power supply box in accordance with European electrical standards with general power disconnector, white voltage presence light, emergency stop button, ground connection and differential protection.

Supplied accessories:

2 bags of 25 kg of regeneration salt
Water analysis case



Technical characteristics

1. Cartridge filter 10µm on the combined city inlet water with a carbon filter
2. Softener with ion exchange resin with volumetric regeneration salt container
3. 75 L polyethylene tank with drain valve
4. Low level detector
5. Reverse osmosis membrane (permeate flow rate under 10 bar : 250L/h)
6. Flowmeter on the recirculation (600-6000L/h)
7. Flowmeter on the permeate (50-500L/h)
8. Flowmeter on the concentrate (50-500 L/h)
9. Vertical multicellular pump
 - $P_{maxi} = 13$ bars
 - $Q_{maxi} = 1,2$ m³/h
10. Two conductivity measurements with electronic display at the inlet and outlet of the osmosis column (raw water and reverse osmosis water)
11. Three pressure measurements per pressure gauge, network water, raw water pump outlet and raw water inlet osmosis column.

Services required

- Electrical supply : 230 Vac – 50 Hz – 16 A
- Electrical network : 1 phase + Neutral + Earth
- Water supply : 15 L/min – 3 bars
- Water drain : on the floor D= 40mm
- Water tank volume: 75 L
- Dimensions: (LxWxH mm): 2645 x 705 x 1965
- weight (Kg): 200

Documentation

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

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