

BASIC HEAT PUMP WATER/WATER



Experimental capabilities

- Identification of the components of a standard refrigeration circuit
- Visualization of the piping and assembly and of the components
- Installation, commissioning and settings
- Measurement of the parameters of the system (pressure, temperature..)
- Construction of the refrigeration cycle on the enthalpic diagram (H-log P)
- Coefficient of performance of the heat pump

Operating principle

The bench CRD100 allows the study of the refrigeration cycle. The circuit contains the most common components of a refrigeration installation (compressor, condenser, expansion valve, evaporator and accessories). The condenser and the evaporator are water exchanger.

The students should first start the compressor and then adjust the flow of water in the exchanger.

When the cycle is stabilized, the students can collect manually the data (pressure, temperature).

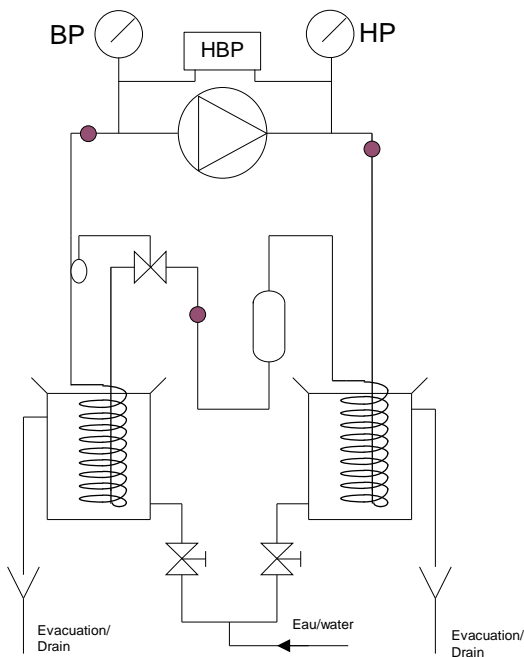
The teacher can request that the student change the flow of water to show the effect on the efficiency of the cycle.

The robust design of this device makes it suitable for use in schools.

The equipment is set up on an Anodized aluminium frame on feet. 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

The trainer is installed on a structure in screwed aluminum profile equipped with 4 feet with non-slip pad.

1. Hermetic compressor (about 400W at 7°C evaporation)
2. Condenser:
Immersed copper coil condenser
Water tank, capacity: 2 liters
Manual valve to adjust the water flow
Overflow pipe and drain valve.
3. Evaporator:
coil immersed copper
Water tank, capacity: 2 liters
Manual valve to adjust the water flow
Overflow pipe and drain valve
4. Liquid tank
5. Filter drier
6. Internal equalization regulator
7. High and low pressure switch
8. Sight glass to visualize the state of the fluid (compressor suction, compressor discharge, expansion valve inlet)
9. LP = low pressure gauge
10. HP = high pressure gauge
11. Electrical box with compressor start-up.
12. Accessories included:
Portable thermometer with sensor suitable for measuring on refrigeration pipes and in water tanks.

Services required

- Electrical supply : 230 Vac – 50 Hz – 4 A
- Electrical network : 1 phase(s) + Neutral + Earth.
- Water supply : 3 L/min – 1 bars
- Water drainage: at ground level
- Dimensions: (LxWxH mm): 700 x 450 x 600
- weight (Kg): 25

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

Documentation

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

Options

- Water flow meter with float and adjustment valve
- Electrical consumption meter on socket with display of voltage, current, instantaneous electrical power, frequency, power factor..
- Refrigerant flowmeter with needle dial display
- Ref : CRD101
- Ref : CRD102
- Ref : CRD103