

NEGATIVE COLDROOM



Experimental capabilities

- Identification of the components of a negative coldroom system
- Power on, use and settings
- Study of the basic concept of a R448A installation
- Setting of equipment at compression level, hermetic piston compressor, heat exchange, powers, performances coefficients.
- Study of thermodynamic cycle on enthalpic diagram.
- Study of regulation
- The system has an industrial rendering

Operating principle

The negative refrigeration unit allows the study of a negative refrigeration system. The system includes all standards components such as compressor, condenser, regulator, evaporator, bottles, pressotats.

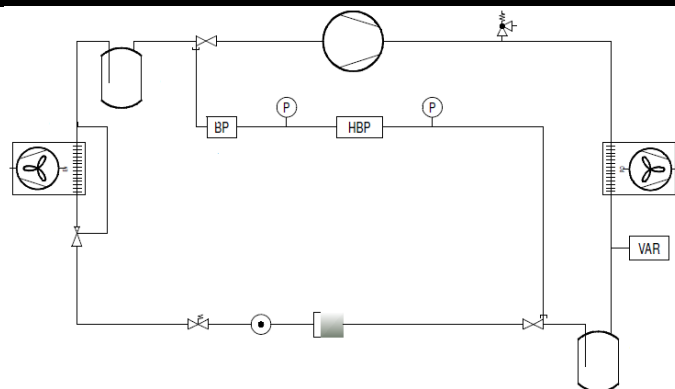
The system comes complete, assembled and functional. Students will be able to work on components identification, commissioning, adjusting and checking for proper operation. They will also be able to recover the fluid and load (requires tools not provided with the unit).

The robust design of this equipment makes it perfectly suited for use in schools.

Its anodized aluminum structure on wheels makes it extremely robust as well as great flexibility of integration into your premises.

The manufacturing of this equipment meets the European machine directive

Illustrations



1 - Hermetic compressor

Commercial type

Refrigerant: **R448A**

Cooling capacity: 521 W

Condensing temperature

+43°C

- Evaporation temperature

-20°C

Maximum pressure: 24 bars

2 - Air condenser

With forced convection

In copper tube and aluminum fins

Mounted on the same chassis as the compressor

Electric fan power: 16 W

3 - Liquid tank

Vertical-Steel

Outlet valve \varnothing 1/4 "

Capacity: 1,5 L

4 - Recovery valve of the fluid

At base

Straight passage \varnothing 1/4 "

Mounted on the bottle

5 - Dehydration station

Solid cartridge dehydrator \varnothing 1/4 "

LED moisture indicator \varnothing 1/4 "

Technical specifications

6 - Electromagnetic valve

Normally closed

Straight passage \varnothing 1/4 "

7 - Thermostatic expansion valve

Internal pressure equalization

8 - Air evaporator

With forced convection

Copper tube and aluminum fins

No fins: 4.23 mm

Electric power of fan: 80W

Cooling capacity: 730W to dt 7K

Electric defrost: 400 W

9 - Suction line accumulator.

Steel

Capacity: 1.5L

10 - System of control and safety

High pressure manometer

Low pressure manometer

Temperature controller with temperature display of the

chamber, operation management (evaporator, compressor), room thermostat and defrost management.

The electrical side of the system includes :

-an electrical cabinet made of steel with a 230VAC plug to connect the accessories.

-the standard safety elements (main switch, emergency stop button, GFCI, connection to earth and white light)

-a circuit breaker for each element

-the relays for the main components of the system (evaporator, electro valve, compressor, condenser, defrost heater)

-lights for each component

-a refrigeration temperature controller with 2 probes to manage all the components (defrost, ventilation...)

Services required

- Power supply : 230Vac – 50 Hz
- Dimensions: (LxWxH mm):1900x 800 x 1800
- weight (Kg): 168

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
- Technical documentation of the components
- Lab exercises
- Wiring diagram
- Fluidic diagram :
- Enthalpic diagram
- Certificate of conformity CE