

## REFRIGERANT TRANSFER TRAINER WITH SEMI HERMETIC COMPRESSOR (AIR/WATER)



EXAMPLE OF REALISATION (WATER/WATER)

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### Experimental capabilities

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- Identification of the components of a refrigeration system
- Commissioning and adjustments (controller, expansion valve) of a refrigeration system
- Refrigerant recovery and charging procedure (requires OUT134 add-on tooling)
- Adjustment of control components (KVP valve, KVR valve, LP pressure switch, HLP pressure switch)
- Maintenance operations on a refrigeration system, replacement of the dehydrator, replacement of a LP line section, replacement of compressor oil, etc. (Requires OUT134 add-on tooling)
- Plot the refrigeration cycle on an enthalpy diagram to check the operation of the system
- Use of R513 or R134a fluid (to be specified)

## Operating principle

The HFF400 trainer is designed to train learners in the handling of refrigerants. The installation is based on a refrigeration cycle running on R134a or R513. It includes the main components of a positive refrigeration installation, a compressor, a water evaporator, a liquid tank, an oil separator, a control solenoid valve, an expansion valve, an air condenser and an accumulation tank. Schrader service valves and fittings allow learners to connect a manifold for loading, retrieval, and function check operations.

Energy dissipation is done by a closed-loop water circuit including a unit heater to dissipate calories and a buffer tank. A thermostatic control box will control the operation of the solenoid valve (pump-down regulation) according to the water temperature, just like for a chiller. A button allows the pressure switches to be double-passed to force the compressor to operate and facilitate the removal of manifolds.

The rugged design of this equipment makes it perfectly suited for use in a school setting. Its anodized aluminum structure on wheels gives it great robustness as well as great flexibility of integration into your premises. In the lower part, the bench has a storage area equipped with a door with a key lock (tool storage).

The manufacture of this equipment complies with the European Machinery Directive. This equipment can be used alone or in combination with other compatible equipment in our range (see last part of this document).

## Technical details

1. Semi-hermetic compressor with service valves
2. Oil separator with compressor return line
3. HLP Safety Pressure Switch
4. LP control pressure switch for pump-down
5. Safety Valve on the HP Line
6. Air-cooled condenser with pressure inverter for HP pressure control
7. KVR Type Condensing Pressure Control Valve with Condenser Bypass NRD Valve
8. Steel Liquid Tank
9. Plug valve with Schrader fitting to isolate sections of piping and allow fluid recovery
10. Filter Dehydrator
11. Fluid status indicator light
12. Solenoid control valve
13. Thermostatic expansion valve with external equalization
14. Plate exchanger type water evaporator
15. KVP Type Pressure Control Valve with Dual Pass Solenoid Valve for Pump Down Vacuum Draft
16. Accumulator volume 1.5L

The bench also features:

- a power supply box with GFCI, punch stop, general disconnect and a 2P+T socket to connect accessories (pump, recovery station, etc.)

- a digital thermostatic controller with probe on the cold water circuit. The box controls the solenoid valve (pump down regulation).

- A push button allows the pressure switches to be double-passed to facilitate the removal of the manifold

- a closed-loop water network for heat dissipation comprising a buffer tank with variable 1000W electrical load resistance, an expansion vessel, a circulator, a unit heater, a water flow meter and a flow control valve.

- The bench is pre-filled with a water/glycol mixture

- a storage area in the lower part of the chassis with access through a door. A key lock helps secure the storage.

- A screwed aluminium profile structure equipped with four directional castors with brakes.

# HFF400



## Basic tooling kit included

- Large-format adjustable wrench
- Small adjustable wrench
- Flat screwdriver
- Phillips screwdriver
- Flat thumb tom screwdriver
- Phillips thumb tom screwdriver
- 10 Spanner Wrench
- 11 Spanner
- Tape measure
- Refrigeration ratchet wrench

## Spare parts kit included

- Dehydrator
- Liquid Indicator Light
- Thermostatic expansion valve with external pressure equalization and orifice
- Solenoid Magnetic Coil (x2)
- Maintenance cloths
- Cleaner
- Presto bubble leak detector
- A set of nuts

## Services required

- Electrical supply : 230 Vac – 50 Hz – 16 A
- Electrical network : 1 phase(s) + Neutral + Earth.
- Dimensions: (LxWxH mm): 1500 x 780 x 1800
- weight (Kg): 160

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

- Specific tooling kit for refrigerant
- Ref : OUT134