# ERT140

# DOMESTIC HEAT PUMP TRAINER

## Experimental capabilities

- **Identification of components of a heat pump installation water/water**
- **Commissioning of a heat pump water/water**
- **Measurement of the installation operating parameters**
- **Settings of the regulation (heating curve ...)**
- **Function tests at varied throttle settings**
- **Thermal balances of installation on the hot circuit and the cold circuit**
- **Study of the refrigeration cycle of the machine**
- **Determination of the overall efficiency of the machine**

DIDATEC– Zone d'activité du parc – 42490 FRAISSES- FRANCE
Tél. +33(0)4.77.10.10.10 – Fax+33(0)4.77.61.56.49 – www.didatec-technologie.com
email : service_commercial@didatec-technologie.com

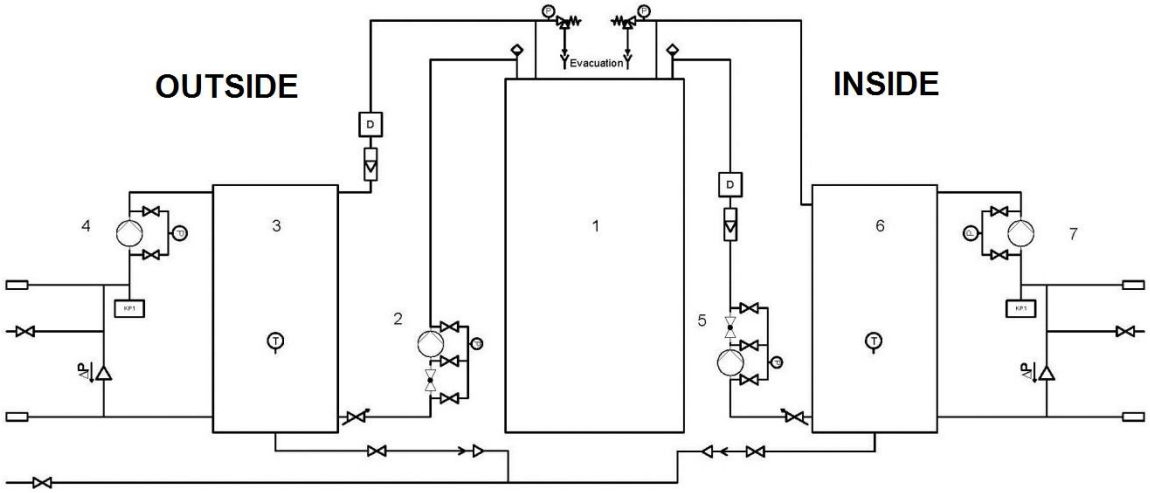
version : FT-ERT140-STD-E

# ERT140

## Operating principle

The ERT140 bench allows the study of a domestic heat pump of DE DIETRICH brand. It is equipped with two circuits (an inner circuit and an outer circuit) comprising buffer tanks. This will avoid short cycles and allow students time to make adjustments and get records. The evaporator load side is realized by an electrical heater situated in the tank but it is also possible to connect the circuit on a dissipation loop or optional dissipation module. The condenser load side is realized by an optional dissipation module (see last section of this document) to be selected based on the expected applications. Each circuit consists of a primary circuit (between the Heat Pump and the tank) and a secondary circuit (between the tank and dissipation).
The bench is fully instrumented to allow maximum educational use. There can be added an optional monitoring system.
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.
This equipment can be used alone or with other compatible equipments in our range (see last section of this document).

## DIAGRAM OF THE INSTALLATION




## Technical specifications

1. Domestic heat pump
- Average heating power: 6KW
- control panel for programming of parameters (heating curve ...)
- Thermometer at input and output of each circuit

2. Primary circuit side "ground-source" composed of:
- A flow rate control valve
- A valve filter with measuring pressure losses
- A circulator with measurement of HMT
- A bleed valve at high point
- A heating safety valve
- A pressure manometer 0-4bars
- Online flow rate detector

3. Buffer tank side "ground-source "
- Volume: 100L, Jacquette in pleather
- Electric heating resistance 4.5KW
- Thermometer on the front
- Drain valve at low point and bleed valve at high point

4. Secondary circuit side "ground-source " composed of:
- A circulator with measurement of HMT
- A differential pressure valve
- Two quick couplings for connection towards the dissipation modules

5. Primary circuit side "house" composed of:
- A flow rate control valve
- A valve filter with measuring pressure losses
- A circulator with measurement of HMT
- A bleed valve at high point
- A heating safety valve
- A pressure manometer 0-4bars
- Online flow rate detector

6. Buffer tank side "house"
- Volume: 100L, Jacquette in pleather
- Thermometer on the front
- Drain valve at low point and bleed valve at high point

7. Secondary circuit side "house" composed of:
- A circulator with measurement of HMT
- A differential pressure valve
- Two quick couplings for connection towards the dissipation modules

DIDATEC– Zone d'activité du parc – 42490 FRAISSES- FRANCE
Tél. +33(0)4.77.10.10.10 – Fax+33(0)4.77.61.56.49 – www.didatec-technologie.com
email : service_commercial@didatec-technologie.com

8. The bench has a electrical box with standard protections (switch, differential circuit breaker, red mushroom stop button ), instrumentation and regulation:
-An external temperature simulation box
- A touch screen display showing:
On the water circuit:
- Input and output temperature Heat Pump (ground-source)
- Input and output temperature Heat Pump (house)
- Tank temperature (ground-source)
- Tank temperature (house)
- Departure and return temperature secondary circuit (ground-source)
- Departure and return temperature secondary circuit (house)
- Primary circuit flow rate (ground-source)
- Primary circuit flow rate (house)
- Secondary circuit flow rate (ground-source)
- Secondary circuit flow rate (house)

On the refrigeration system:
-Compressor suction temperature
- Compressor discharge temperature
- Expansion valve inlet temperature
- LP pressure
- HP pressure

## Services required

- Power supply: 400Vac – 50 Hz – 20 A
- Power supply type: 3 phase(s) + Neutral + Earth.
- Water supply : 2.5 bars filling
- Dimensions: (LxWxH mm): 2995 x 800 x 1985
- weight (Kg): 300

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
- Hydraulic diagram
- Enthalpic diagram
- Certificate of conformity CE

## Additional compatible equipment

- Unit Heater
- Radiators bench
- Bench heating floor
- Hydrualics balancing unit
- TA balancing briefcase
- Fan convectors

- Ref : AER033
- Ref : TCF120
- Ref : TCF121
- Ref : TCF 122
- Ref : TCF 123
- Ref : TCF124

DIDATEC– Zone d'activité du parc – 42490 FRAISSES- FRANCE
Tél. +33(0)4.77.10.10.10 – Fax+33(0)4.77.61.56.49 – www.didatec-technologie.com
email : service_commercial@didatec-technologie.com