



## MODULE FOR THE STUDY OF INDUSTRIAL REFRIGERATION DL TMACM-ICR



This trainer is designed to show the different modes of variation of temperature and relative humidity in cold rooms to protect the goods being stored from the activity of microorganisms growing at ambient temperature.

It includes two cold rooms for food preservation:

- ◆ a low-temperature room (for frozen food) and,
- ◆ a positive temperature and high relative humidity room (for fresh food).

### TECHNICAL FEATURES

The trainer includes the following components:

- Tabletop aluminium structure,
- Two small cold rooms each with:
  - ◆ door,
  - ◆ forced air evaporator,
  - ◆ internal thermal load,
  - ◆ temperature and relative humidity sensor.
- Colour printed schematic diagram of the hydraulic circuit,
- Thermostatic and automatic valves for gas expansion,
- Solenoid valves for selecting the cold room to be examined,



- Cocks for an easy connection (with the basic trainer **DL TMACM-RS**),
- Specific supervision software.

## TRAINING PROGRAM

With this trainer, the students can perform the following practices:

- Basic concepts of industrial refrigeration,
- Differences between actual and ideal cycles seen on P-h diagram,
- System efficiency, heat flows,
- Pressure-enthalpy diagrams of refrigerants for industrial refrigeration,
- Defrosting,
- Connecting evaporators in series and in parallel,
- Design parameter and how thermal loads affect design conditions,
- Servicing industrial refrigeration systems,
- Tests concerning:
  - ◆ heat exchanges,
  - ◆ assessment of the parameters of the refrigeration cycle and their plotting onto P-h diagram,
  - ◆ heat balances of compressor, evaporator, condenser.
- Assessing the system **Energy Efficiency Ratio (EER)** and the compressor volumetric efficiency,
- Checking the relative humidity inside the cold room for a correct preservation of fresh food,
- Adjusting the automatic valve versus the characteristics of the product to be stored,
- Analysis of the operation of a thermostatic expansion valve,
- Fault insertion tests included (with the basic trainer **DL TMACM-RS**).