COMPUTERIZED INDUSTRIAL REFRIGERATION TRAINER
Mod. TRIC/EV

INTRODUCTION

This trainer is designed for the study of industrial refrigeration whose main aim consists in controlling the temperature and relative humidity of one or more cold rooms. In this case a unique compressor and a unique condenser are used for two different cold rooms: one for frozen products and the other for fresh products. This trainer also simplifies the learning of data acquisition techniques by using proper instruments and a Personal Computer (supplied on demand).

TRAINING PROGRAM

- Plant starting and safety devices intervention checking
- Studying the operation of a thermostatic expansion valve and its calibration
- Proportional control
- Correlation between evaporation temperature, room temperature and relative humidity in positive-temperature rooms
- Analyzing the system behaviour versus the variation of:
  - valves opening degree
  - condenser air flow
- Plotting the cycle in the refrigerant pressure-enthalpy diagram
- Data acquisition and calculation of:
  - heat balances corresponding to evaporator, condenser, compressor
  - refrigerant mass flow
  - ideal and actual EER
  - volumetric compression efficiency
  - condenser exchange surface
  - heat transfer coefficient between air and refrigerant in the condenser
  - heat losses through the room walls
- The software of the equipment allows to enter different sections:
  - system automatic and manual operation
  - faults enabling (12)
  - troubleshooting and plant operation reset
  - system supervision with display of the values detected by the sensors

TECHNICAL SPECIFICATIONS

- Steel structure mounted on wheels, painted and treated in the oven
- Colour silk-screen-printed schematic diagram of the hydraulic circuit with warning LEDs
- Hermetic compressor
- Variable flow forced-air condenser
- 2 cold rooms with separate evaporators
- Electronic expansion valve, thermostatic expansion valve, back-pressure valve
- Liquid receiver, liquid separator
- Solenoid valves, check valve, on-off valves, sight glass, dehydrator filter
- Valve for plant vacuum, refrigerant charging and recovering
- Pipes connecting the various components painted with different colours

- Transducers and sensors for detecting the following system operating parameters: voltage, current, power factor, refrigerant temperatures, freezer temperature, refrigerator temperature and relative humidity, cycle pressures (high, low and intermediate), refrigerant flow rate
- High and low pressure gauges
- Double pressure switch
- Thermomagnetic - earth leakage control button
- Emergency button
- PC control program

Power supply: 230 Vac 50 Hz single-phase - 650 VA (Other voltage and frequency on request)
Dimensions: 180 x 80 x 180 cm
Net weight: 187 kg

REQUIRED

PERSONAL COMPUTER
- NOT INCLUDED -

SUPPLIED WITH

EXPERIMENTAL HANDBOOK