

COMPUTERIZED GENERAL REFRIGERATION TRAINER

Mod. RCTC/EV

INTRODUCTION

This trainer is designed for the in-depth study of vapour-compression cycle; it uses a personal computer (supplied on demand), data acquisition and PC interface board, suitable transducers and sensors. It enables to vary the load conditions at condenser and evaporator, to use alternative devices for the gas expansion, to insert non destructive hydraulic and electric faults for developing diagnostic skills in students; the data acquisition system supplied with the equipment enables students to become familiar with the refrigerant pressure-enthalpy diagram and to analyze the heat balances corresponding to the different cycle components.

TRAINING PROGRAM

- Plant starting and safety devices intervention checking
- Analyzing the system behaviour versus the variation of:
 - expansion device
 - valve opening degree (when the electronic valve is used for expansion)
 - air flow rate at condenser and/or evaporator
- 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
- The software of the equipment allows to enter different sections:
 - system automatic and manual operation
 - refrigerating circuit heat balance
 - faults enabling (10)
 - 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
- Forced-air condenser with variable flow settable by potentiometer, equipped with 8 glass pipes for displaying the refrigerant condensation process
- Forced-air evaporator with variable flow settable by potentiometer, equipped with 8 glass pipes for displaying the refrigerant evaporation process
- Devices for liquid lamination: electronic expansion valve, capillary tubes of different length
- Liquid receiver, liquid separator
- Solenoid valves, 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, temperatures, cycle pressures, refrigerant flow rate
- High and low pressure gauges
- High and low pressure switches
- Thermomagnetic - earth leakage control button
- Emergency button
- PC control program

Power supply: 230 Vac 50 Hz single-phase - 600 VA
(Other voltage and frequency on request)

Dimensions: 140 x 80 x 180 cm

Net weight: 145 kg

REQUIRED

PERSONAL COMPUTER
- NOT INCLUDED -



SUPPLIED WITH

EXPERIMENTAL HANDBOOK

