

DOMESTIC REFRIGERATION TRAINER

Mod. TRD/EV

INTRODUCTION

Domestic refrigeration trainer is designed to identify and analyze the behaviour of thermodynamic cycle of domestic refrigerators. Students' attention is focused onto the issues concerning refrigerant condensation that is generally inadequate because of the poor heat exchange due to the low convection occurring in the narrow spaces where domestic refrigerators are usually installed.

TRAINING PROGRAM

- ON-OFF control: refrigerator thermostat
- Using the refrigerant pressure-enthalpy diagram as work and diagnosis tool: plotting the refrigeration cycle
- Data acquisition and calculation of:
 - heat balances corresponding to evaporator, condenser, compressor
 - refrigerant mass flow
 - ideal and actual EER
 - volumetric compression efficiency and its trend versus compression ratio
 - condenser exchange surface
 - heat transfer coefficient between air and refrigerant in the condenser
 - heat losses through the room walls

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
- Static wire condenser
- Refrigerated room with static evaporator
- Thermostat for controlling the room temperature
- Capillary tube
- On-off valves, sight glass, dehydrator filter
- Valve for plant vacuum, refrigerant charging and recovering
- Pipes connecting the various components painted with different colours
- Full set of instruments for data acquisition, including:
 - flowmeter
 - high and low pressure gauges
 - 2 electronic thermometers with Pt100 probes to be inserted into several test points along the hydraulic circuit
 - digital multimeter
- Thermomagnetic - earth leakage control button
- Emergency button

Power supply: 230 Vac 50 Hz single-phase - 150 VA
(Other voltage and frequency on request)

Dimensions: 140 x 80 x 180 cm

Net weight: 132 kg



SPECIAL VERSION ON DEMAND

Besides offering the characteristics of standard version, this version also includes:

- Fault simulator using switches, or
- Fault simulator operating with keypad and microprocessor enabling the teacher to introduce anomalies and to assess the troubleshooting attempts carried out by students



SUPPLIED WITH

EXPERIMENTAL HANDBOOK

