



INTRODUCTION

There are two important issues in refrigeration systems: safety and the wiring of electrical components for the start and operation of compressors.

The Electrical Connection of Refrigerant Compressors Unit, "TECR", allows the student to analyze these aspects, providing them a view oriented to real refrigeration systems, since all the elements are operated and tested with mains voltage.

GENERAL DESCRIPTION

The Electrical Connection of Refrigerant Compressors Unit, "TECR", includes the electrical elements required for the start and operation of a refrigerant compressor and the necessary safety elements, arranged on a panel in a clear and visible way, with connections distributed in such a way that they can be easily identified.

The unit mainly consists of a compressor, a receiver, valves to adjust the pressure and electrical and safety elements.

As electrical elements, there is a starting capacitor and starting relay for the compressor, an automatic fuse and protection against overheating (bimetallic). These elements are connected by lab jacks.

The pressure in the system is controlled by two pressure switches (one in the intake side and the other in the delivery side), interrupting the power supply of the compressor. There are also two manometers (one in the intake side and the other in the delivery side) to visualize the pressure variations.

To control the temperature in the system, a thermostat cuts the power supply to the compressor when a specific temperature is exceeded.

Other connection and checking functions of other typical elements of a safety chain in refrigeration, such as an automatic fuse or protection switch against overheating, can also be performed.



ISO 9001: Quality Management (for Design, Manufacturing, Commercialization and After-sales service)



European Union Certificate (total safety)



Certificates ISO 14001 and ECO-Management and Audit Scheme (environmental management)



Certificate and Worlddidac Member

SPECIFICATIONS

Experimental unit for the training of apprentices in the refrigeration area.

Anodized aluminum frame and panels made of painted steel.

The unit includes wheels to facilitate its mobility.

Main metallic elements made of stainless steel.

Diagram in the front panel with distribution of the elements similar to the real one.

Real electrical connections of a compressor in refrigeration systems.

Refrigeration circuit consisting of:

Hermetic compressor for refrigerant R-134a. Power consumption: 275 W approx.

Refrigerant receiver. Capacity: 2 l.

Two valves.

Two manometers to check pressure switches.

Low pressure manometer in the intake side. Range: -1 to 10 bar.

High pressure manometer in the delivery side. Range: -1 to 30 bar.

Two pressure switches:

Low pressure switch in the intake side. Regulation range: -0.9 to 7 bar.

High pressure switch in the delivery side. Regulation range: 8 to 32 bar.

Thermostat. Range: -5 to 35°C.

Electrical components for the compressors mounted in a clearly visible way:

Start-up capacitor.

Start-up relay.

Automatic fuse.

Protections against overheating.

Main switch.

Lab jacks and cables for the electrical connections.

Multimeter.

The unit has been designed to be used with the environmental friendly refrigerant R-134a, CFC free.

Cables and accessories, for normal operation.

Manuals: This unit is supplied with the following manuals: Required Services, Assembly and Installation, Starting-up, Safety, Maintenance & Practices Manuals.

EXERCISES AND PRACTICAL POSSIBILITIES

- 1.- Study and analysis of the electrical connections for a compressor in a refrigeration circuit.
- 2.- Reading, understanding, wiring and checking of electrical connections diagrams.
- 3.- Study of the design, assembly and operation of the electrical and safety components for a compressor in a refrigeration circuit:
 - Start-up capacitor.
 - Start-up relay.
 - Automatic fuse.
 - Protections against overheating.
 - Thermostat.
 - Pressure switch.
- 4.- Design and checking of a safety chain in refrigeration systems.
- 5.- Study of the symbols and electrical connection diagrams in refrigeration systems.
- 6.- Study of the safety aspects to be considered when working with mains voltage.

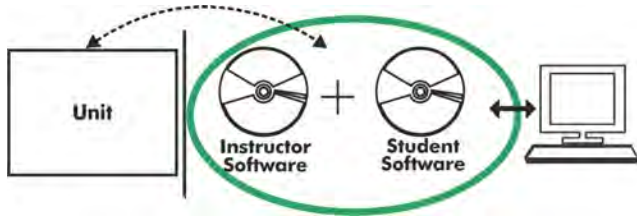
REQUIRED SERVICES

- Electrical supply: single-phase, 220V/50Hz or 110V/60Hz.

DIMENSIONS AND WEIGHTS

-Dimensions: 900 x 380 x 600 mm approx.
(35.43 x 14.96 x 23.62 inches approx.)
-Weight: 35 Kg approx.
(77.16 pounds approx.)

TECR/ICAI. Interactive Computer Aided Instruction Software System:



With no physical connection between unit and computer (PC), this complete software package consists of an Instructor Software (EDIBON Classroom Manager -ECM-SOF) totally integrated with the Student Software (EDIBON Student Labsoft -ESL-SOF). Both are interconnected so that the teacher knows at any moment what is the theoretical and practical knowledge of the students.

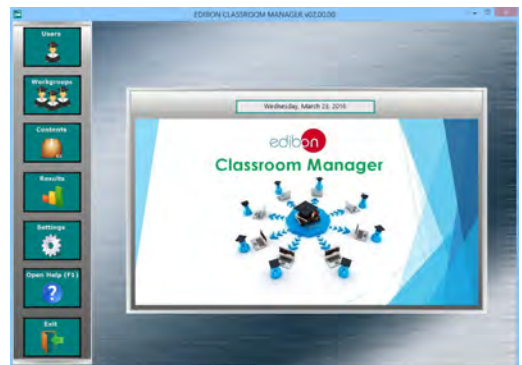
Instructor Software

- ECM-SOF. EDIBON Classroom Manager (Instructor Software).

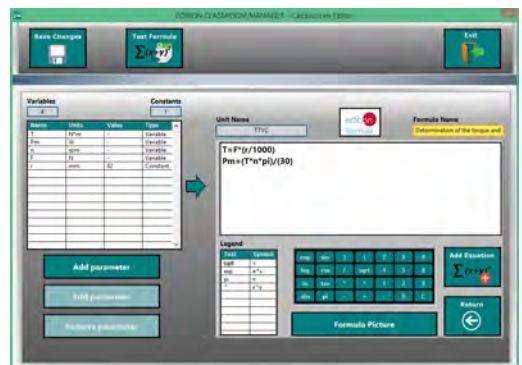
ECM-SOF is the application that allows the Instructor to register students, manage and assign tasks for workgroups, create own content to carry out Practical Exercises, choose one of the evaluation methods to check the Student knowledge and monitor the progression related to the planned tasks for individual students, workgroups, units, etc... so the teacher can know in real time the level of understanding of any student in the classroom.

Innovative features:

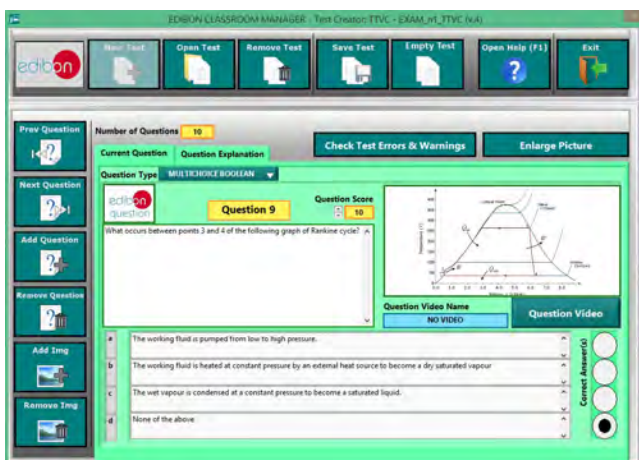
- User Data Base Management.
- Administration and assignment of Workgroup, Task and Training sessions.
- Creation and Integration of Practical Exercises and Multimedia Resources.
- Custom Design of Evaluation Methods.
- Creation and assignment of Formulas & Equations.
- Equation System Solver Engine.
- Updatable Contents.
- Report generation, User Progression Monitoring and Statistics.



ECM-SOF. EDIBON Classroom Manager (Instructor Software) Application Main Screen



ECAL. EDIBON Calculations Program Package - Formula Editor Screen



ETTE. EDIBON Training Test & Exam Program Package - Main Screen with Numeric Result Question



ERS. EDIBON Results & Statistics Program Package - Student Scores Histogram

Optional
Student Software

- **ESL-SOF. EDIBON Student Labsoft (Student Software).**

ESL-SOF is the application addressed to the Students that helps them to understand theoretical concepts by means of practical exercises and to prove their knowledge and progression by performing tests and calculations in addition to Multimedia Resources. Default planned tasks and an Open workgroup are provided by EDIBON to allow the students start working from the first session. Reports and statistics are available to know their progression at any time, as well as explanations for every exercise to reinforce the theoretically acquired technical knowledge.

Innovative features:

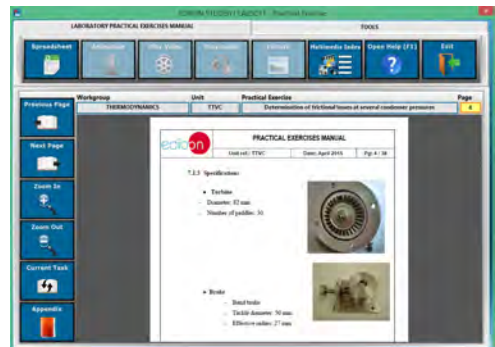
- Student Log-In & Self-Registration.
- Existing Tasks checking & Monitoring.
- Default contents & scheduled tasks available to be used from the first session.
- Practical Exercises accomplishment by following the Manual provided by EDIBON.
- Evaluation Methods to prove your knowledge and progression.
- Test self-correction.
- Calculations computing and plotting.
- Equation System Solver Engine.
- User Monitoring Learning & Printable Reports.
- Multimedia-Supported auxiliary resources.

For more information see ICAI catalogue. Click on the following link:

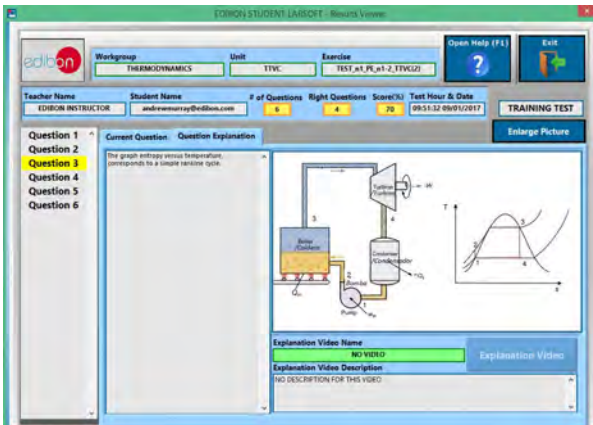
www.edibon.com/en/files/expansion/ICAI/catalog



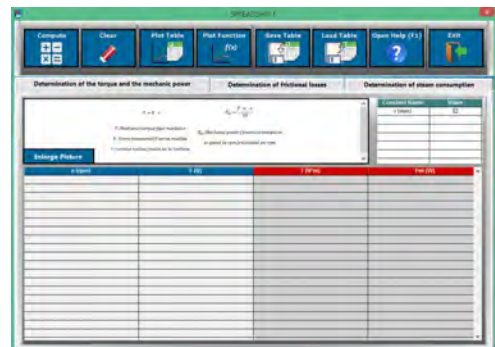
ESL-SOF. EDIBON Student LabSoft (Student Software)
Application Main Screen



EPE. EDIBON Practical Exercise Program Package Main Screen



ERS. EDIBON Results & Statistics Program Package - Question Explanation



ECAL. EDIBON Calculations Program Package Main Screen

* Specifications subject to change without previous notice, due to the convenience of improvement of the product.



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REPRESENTATIVE:

