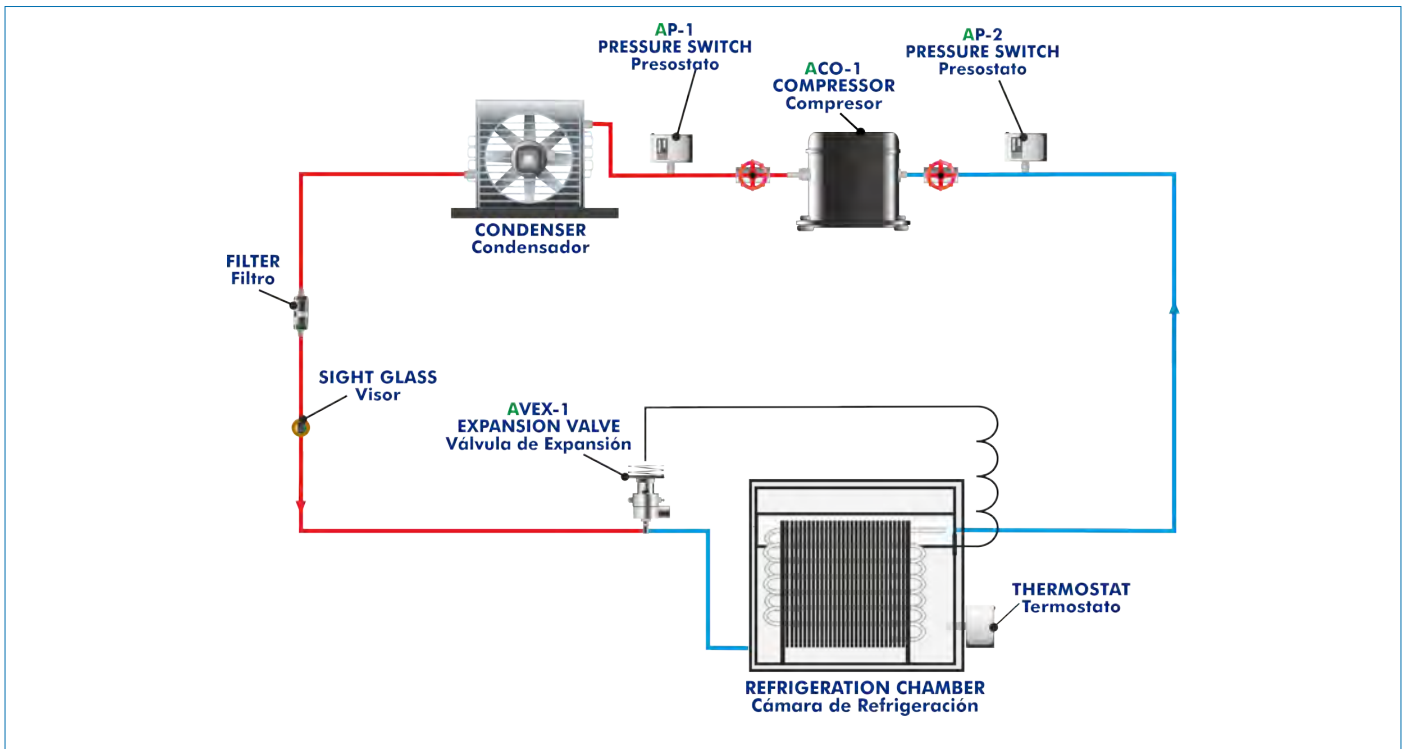




PROCESS DIAGRAM AND UNIT ELEMENTS ALLOCATION



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

INTRODUCTION

Refrigeration systems are essential to maintain certain elements in a temperature range. But it is very important how the wiring of the elements is carried out and how they interact with each other.

GENERAL DESCRIPTION

The Assembly and Maintenance in Refrigeration Systems Unit, "TAMR", has been designed to teach the students working within complex projects. In order to do this, the "TAMR" unit shows the students the planning, implementation and checking of processes related to assembly, commissioning and maintenance of refrigeration systems.

The "TAMR" unit explains in a practical way the elements assemblies related to refrigeration installations, for example the installation of Low Pressure (LP) and High Pressure (HP) switches, the expansion valve and the pipework usually installed in the refrigeration circuits. One important characteristic is that the pipe is bolted to put and remove it at any time. Besides, the electro technical installation includes the wiring, connection and switching of all elements.

The electro technical installation includes the wiring and connection of all units and switching elements. In addition, the unit includes a tool set and it is required the Refrigerant Filling and Evacuation Module "T/KIT3". This fully assembled elements represent a complete functional, temperature-controlled refrigeration system with refrigeration chamber and electrical thermostat.

It is possible to repeat assemblies and disassembles.

All experiments are arranged on a workbench with drawers for storing the components and tools. The assembly panel and refrigeration chamber are mounted on a frame. Frame, condensing unit and switch cabinet are bolted permanently to the working surface. The refrigeration and electrical components are attached to the aluminum assembly panel.

The following are the most important objectives and experiments which can be carried out with this unit:

- Reading and understanding technical documentation.

- Planning and executing assembly steps and processes.

- Making pipe joints in accordance with a system diagram.

- Carrying out electrical installation in accordance with a circuit diagram.

- Commissioning and checking the refrigeration system after successful assembly (in conjunction with the Refrigerant Filling and Evacuation Module).

- Familiarization with the function of a refrigeration system as a system and its components as system components.

- Fault analysis: fault finding, fault evaluation and repair

- Planning, executing and evaluating maintenance processes.

- In conjunction with the Refrigerant Filling and Evacuation Module, evacuating and filling refrigeration systems.

SPECIFICATIONS

Anodized aluminum structure and panels of painted steel.

The unit includes wheels to facilitate its mobility.

Main metallic elements in stainless steel.

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

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

Set-up of a refrigeration system with refrigeration chamber from a complete set of components.

Temperature control via thermostat.

Air-cooled condensing unit with compressor.

Refrigeration chamber with integrated show case evaporator and fan.

Refrigeration chamber with large sight window.

Assembly panel to mount the refrigeration and electrical components.

Electrical assembly in accordance with the circuit diagram.

Easy pipe connection in the refrigeration circuit using bolted pipe joints.

Workbench with drawers to store the components.

Refrigerant R134a, CFC-free.

Main Components:

Workbench with drawers, switch cabinet, condenser with fan, assembly panel, refrigeration chamber with sight window and integrated evaporator and compressor.

Kit consisting of all necessary components and installation material: expansion valve, thermostat, solenoid valve, sight glass, filter/drier, PSL, PSH pressure switch and manometer.

Technical details:

Compressor:

Refrigeration capacity: 373 W at 5°C.

Evaporation temperature.

Power consumption: 200 W.

Receiver:

Capacity: 1 l.

Evaporator:

Capacity: 50 W at -6°C.

Transfer area: 1.06 m².

Refrigeration chamber with sight window: LxWxH (485 x 284 x 396 mm).

Assembly panel: LxW 720 x 500 mm.

Adjustable thermostat: -30 to 15°C.

Thermostatic expansion valve: adjustable.

Power:

230 VAC, 50 Hz, 1 phase.

Tool Set:

Pipe cutter, adjustable spanner, jointing clamp, flanging tool, manual countersink, side cutter, cable stripping knife, crimping tool, wire strippers, set of Allen keys (7 pieces), set of pipe bending pliers (3 pieces), set of screwdrivers (4x straight, 2x Philips), set of ring spanners (19 pieces), steel ruler, small saw, deburring miller, file. A digital multimeter (Digital multimeter for direct and alternating current, battery operated) is included for electrical faultfinding. The leak test in refrigeration systems is carried out using a high quality leak detection device (Battery operated leak detection device suitable for refrigerant R134a) for refrigerant gases. A stable plastic tool case is included.

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.- Reading and understanding technical documentation.
- 2.- Planning and executing assembly steps and processes.
- 3.- Making pipe joints in accordance with a system diagram.
- 4.- Carrying out electrical installation in accordance with a circuit diagram.
- 5.- Commissioning and checking the refrigeration system after successful assembly (in conjunction with Refrigerant Reclamation and Charging Station).
- 6.- Familiarization with the function of a refrigeration system as a system and its components as system components.
- 7.- Fault analysis: fault finding, fault evaluation and repair.
- 8.- Planning, executing and evaluating maintenance processes.
- 9.- In conjunction with the Refrigerant Filling and Evacuation Module, evacuating and filling refrigeration systems.

REQUIRED SERVICES

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

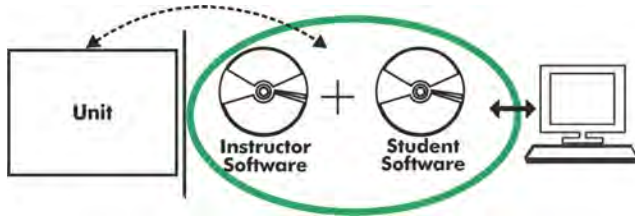
DIMENSIONS AND WEIGHT

TAMR:

- Dimensions: 1500 x 720 x 650 mm. approx.
(59.04 x 28.34 x 25.59 inches approx.)
- Weight: 150 Kg. approx.
(330.6 pounds approx.)

Optional

TAMR/ICAI. Interactive Computer Aided Instruction Software System:



Without any physical connection between unit and computer, 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 Workgroups, Tasks and Training sessions.

Creation and Integration of Practical Exercises and Multimedia Resources.

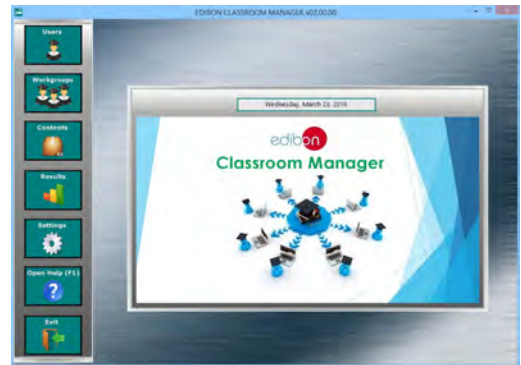
Custom Design of Evaluation Methods.

Creation and assignment of Formulas & Equations.

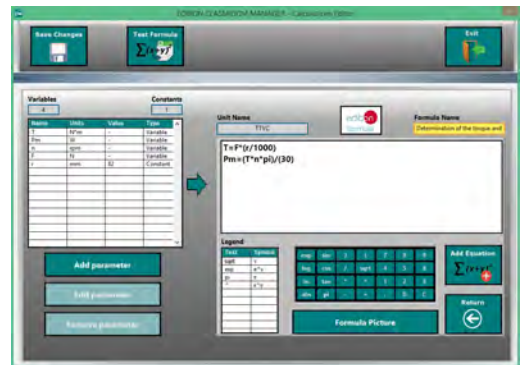
Equation System Solver Engine.

Updatable Contents.

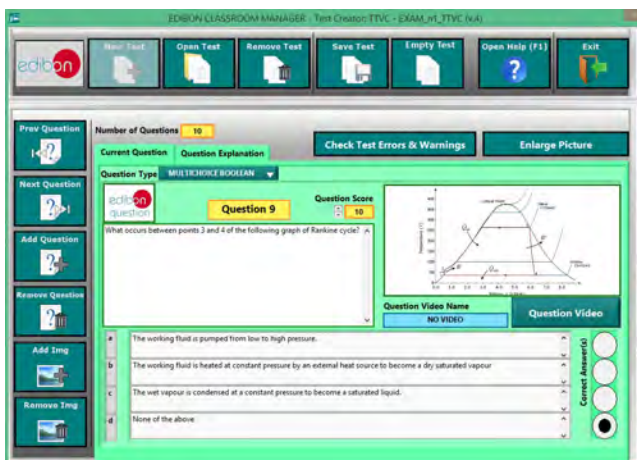
Report generation, User Progression Monitoring and Statistics.



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.

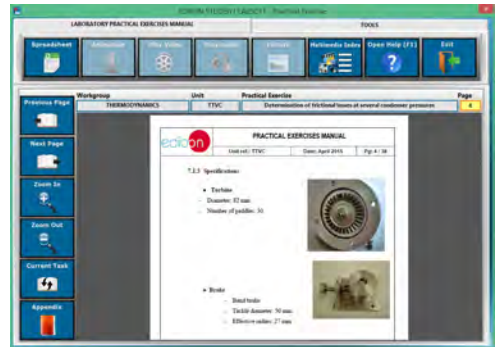
Innovative features:

- 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.**

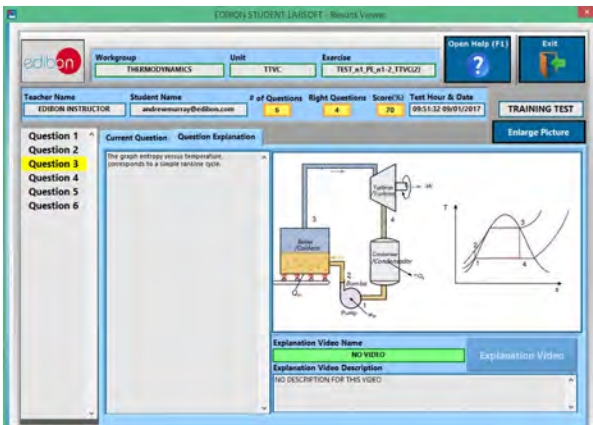
For more information see ICAI catalogue. Click on the following link:
www.edibon.com/products/catalogues/en/ICAI.pdf



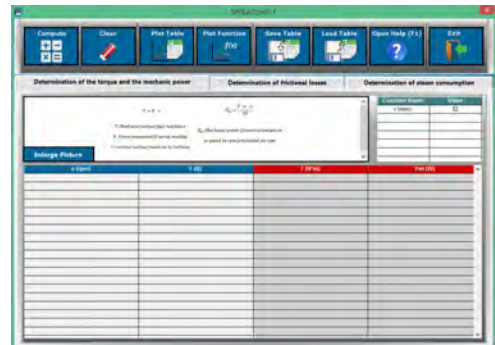
ESL-SOF. EDIBON Student LabSoft (Student Software)
Application Main Screen



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:

