



INTRODUCTION

Pressure measurements are the most important measurements in industry; especially in continuous processes industries, such as chemical compounds processing and production. The amount of instruments employed to measure pressure can be much higher than the amount of instruments used in other types of instruments.

"U" type and Bourdon manometers are essential pressure measurement devices.

The Pressure Measurement Unit, "HEMP", designed by EDIBON, allows to study pressure measurement techniques widely, since different manometers can be used to understand and compare the operation characteristics of the different devices and to study their calibration principles.



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

GENERAL DESCRIPTION

This unit enables a wide range of investigations and studies into pressure measurement techniques, using Bourdon type manometers and different U-tube manometers, to understand the operation, the characteristics of the devices, and to study the principles of calibration and to do practical exercises and experiments about it.

The unit consists of two modules:

A "U" type manometers and Bourdon manometers module:

It consists of:

- Vertical "U" type manometer (direct measurement).
- Inclined "U" manometer (direct measurement).
- Positive pressure Bourdon manometer (indirect measurement).
- Negative pressure Bourdon manometer (indirect measurement).

A Bourdon manometer with dead-weight calibrator module:

It consists of a cylinder with a sliding precision piston fitted inside. A mass calibrated system is added to generate a certain amount of preset pressures inside the cylinder. The Bourdon manometer, whose correct operation has to be checked beforehand with the aid of the piston and masses, is connected to the cylinder through a flexible tube.

SPECIFICATIONS

Bench-top unit consists of two modules:

"U" Manometers and Bourdon Manometers module:

Anodized aluminum structure and panel in painted steel, and main metallic elements in stainless steel.

Bourdon manometer for measuring negative pressure (vacuum gauge), range: -1 to 0 bar.

Bourdon manometer for measuring positive pressure, range: 0 to 2.5 bar.

Vertical "U"-tube manometer, with scale in mm.

Inclined "U"-tube manometer, with scale in mm.

Manual pump (syringe) for pressurising and reducing the pressure in the measurement devices.

Ball valves in each manometric tube.

Three quick "Y" connections to connect two instruments to the same point.

The measuring elements can be exchanged.

Bourdon manometer with dead-weight calibrator module:

Anodized aluminum structure and panel in painted steel, and main metallic elements in stainless steel.

Dead-weight calibrator consists of a piston, with is free to move vertically, in cylinder. Flexible hose connects the cylinder with the Bourdon pressure manometer. A set of weights are included.

Bourdon type manometer with internal mechanism clearly visible through the transparent dial, range: 0 to 2.5 bar.

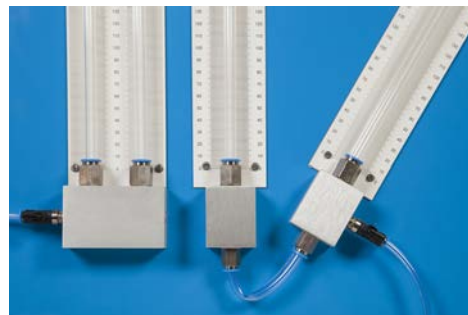
Cylinder and piston:

Diameter of the piston: 18 mm.

Area of the piston: 0.000254469 m².

Weight of the piston: 0.5 Kg.

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



HEMP detail

EXERCISES AND PRACTICAL POSSIBILITIES

- 1.- Familiarisation with different pressure measurement methods.
- 2.- Study of the function and characteristics of a Bourdon type manometer.
- 3.- Study of the function and characteristics of an "U" tube manometers.
- 4.- Pressure measurements with Bourdon type manometers. Indirect measurement.
- 5.- Pressure measurements with vertical or inclined "U"-tube manometers. Direct measurement.
- 6.- Comparison between the different methods of pressure measurement.
- 7.- Calibration of a pressure gauge.
- 8.- Determination of measurement errors.
- 9.- Checking the readings of a Bourdon type manometer using a calibrated standard set of masses.
- 10.-Determination of the hysteresis curve of a manometer.

DIMENSIONS AND WEIGHTS

HEMP:

"U" manometers and Bourdon type manometers module:

-Dimensions: 700 x 400 x 800 mm approx. (27.55 x 15.74 x 31.49 inches approx.)

-Weight: 20 Kg approx. (44 pounds approx.)

Bourdon manometer with dead-weight calibrator module:

-Dimensions: 500 x 350 x 350 mm approx. (19.68 x 13.77 x 13.77 inches approx.)

-Weight: 10 Kg approx. (22 pounds approx.)

HEMP/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.

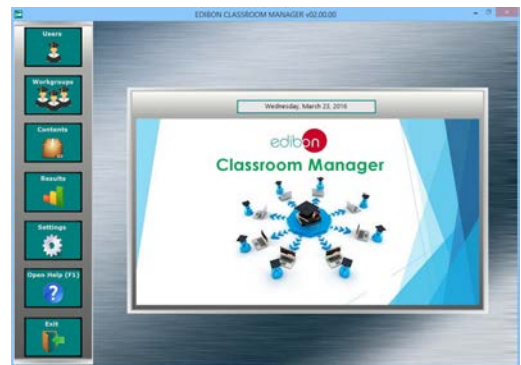
Instructor Software

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

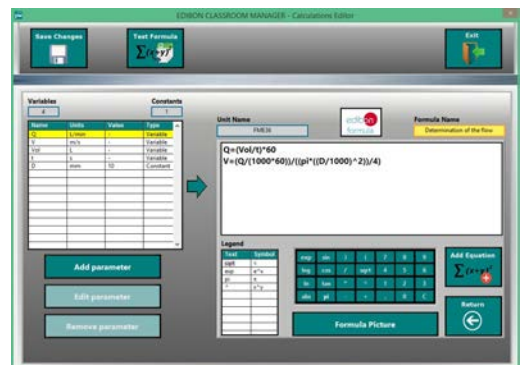
ECM-SOF is the application that allows the Instructor to register students, manage and assign tasks for workgroups, create own content to carry out Practical Exercises, choose one of the evaluation methods to check the Student knowledge and monitor the progression related to the planned tasks for individual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

Innovative features:

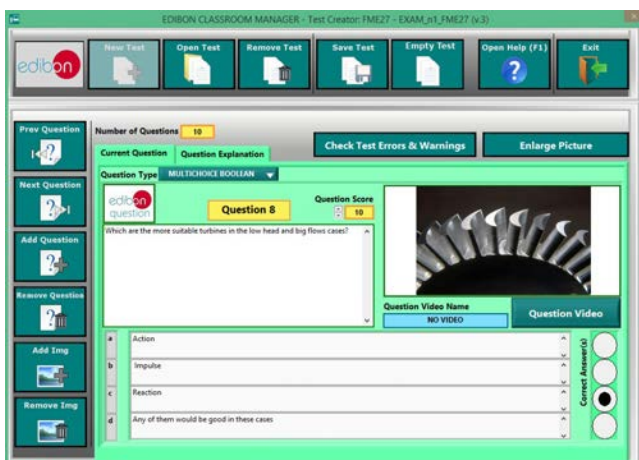
- User Data Base Management.
- Administration and assignment of Workgroup, Task and Training sessions.
- Creation and Integration of Practical Exercises and Multimedia Resources.
- Custom Design of Evaluation Methods.
- Creation and assignment of Formulas & Equations.
- Equation System Solver Engine.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

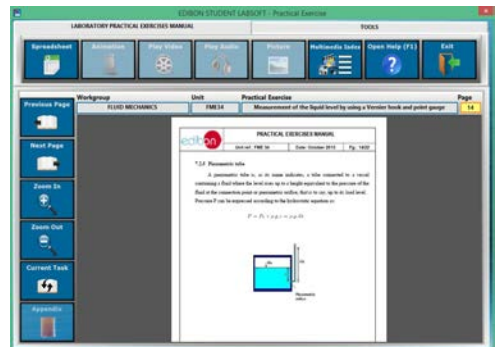
- Student Log-In & Self-Registration.
- Existing Tasks checking & Monitoring.
- Default contents & scheduled tasks available to be used from the first session.
- Practical Exercises accomplishment by following the Manual provided by EDIBON.
- Evaluation Methods to prove your knowledge and progression.
- 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:

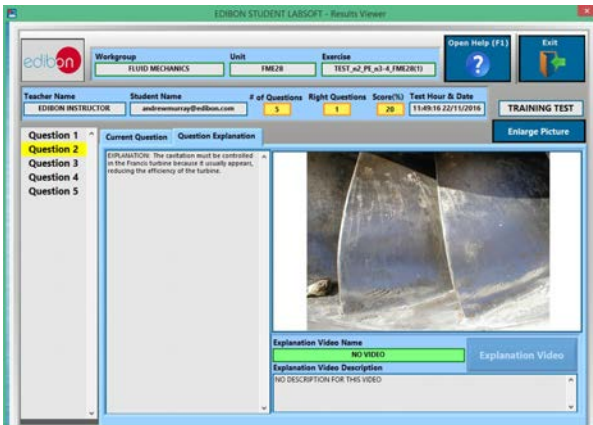
www.edibon.com/en/files/expansion/ICAI/catalog



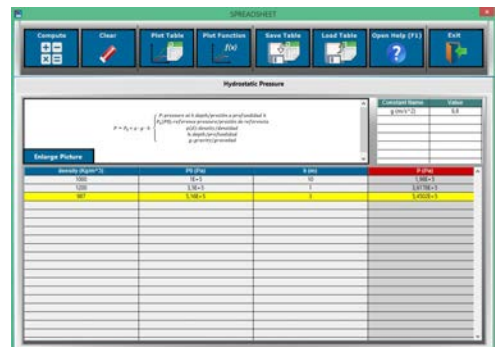
ESL-SOF. EDIBON Student LabSoft (Student Software)
Application Main Screen



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:

