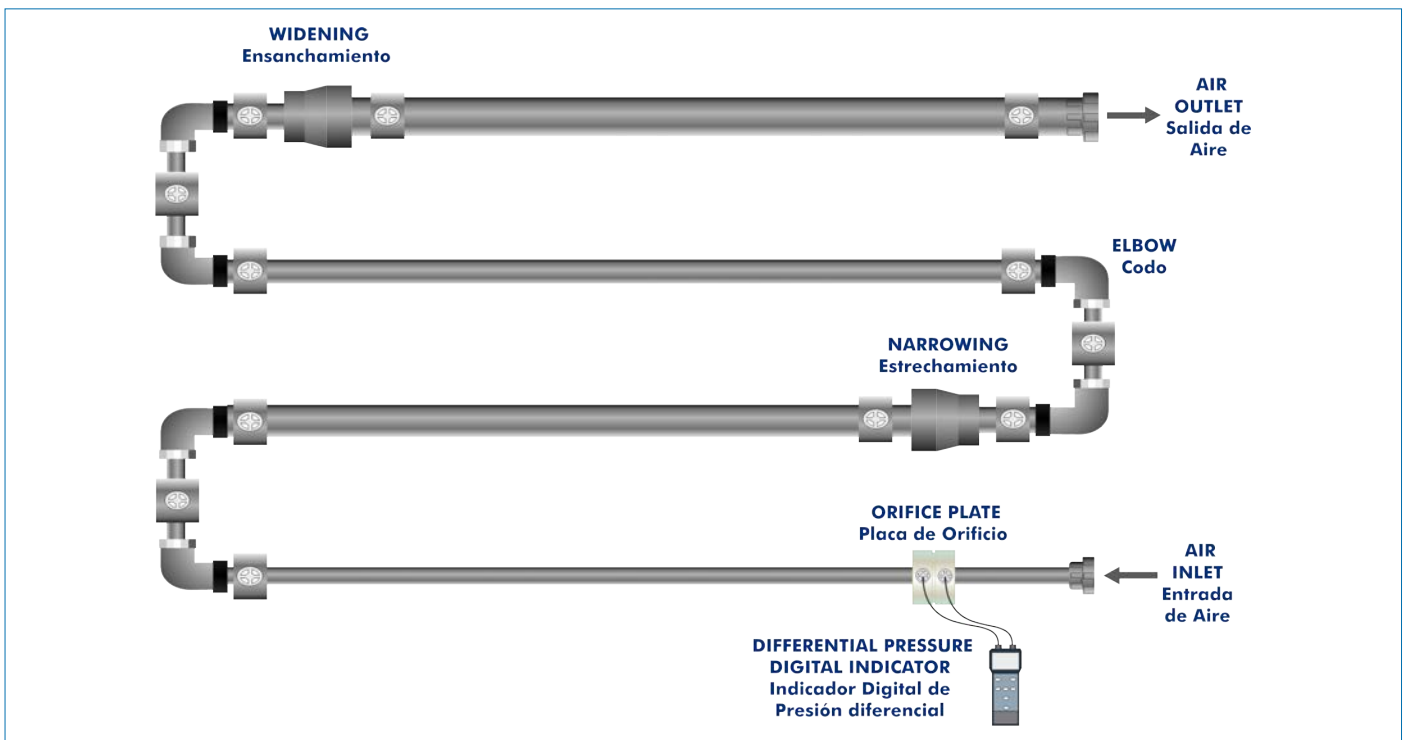




PROCESS DIAGRAM AND UNIT ELEMENTS ALLOCATION



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)



"Worlddidac Quality Charter" and Platinum Member of Worlddidac

## INTRODUCTION

The differential pressure flowmeter is one of the most common principles of fluids flow measurement. In this type of devices, flow is calculated by measuring the pressure drop over an obstruction inserted in the flow. This creates a pressure drop across the device. The differential pressure flowmeter is based on Bernoulli equation, where the pressure drop is a function of the flow rate. Most common types of differential pressure flowmeters are: orifice plate, nozzles and iris diaphragm.

The Unit to Study the Pressure Drop of Compressible Fluids in Pipes, "PDCFP", has been designed to study the basic principles of fluid mechanics that are applied to analyze the flow of a compressible fluid in order to determine the pressure distribution and the velocity profile of a flow.

## GENERAL DESCRIPTION

The Unit to Study the Pressure Drop of Compressible Fluids in Pipes, "PDCFP", allows the study of the compressible fluid pressure drop, for example the air of a compressor, and the different flow conditions (laminar and turbulent) thanks to the distribution of fluid in pipes that have different sections and fittings.

The unit consists of a system of pipes connected through a series of accessories that allow the distribution of air along a network. The pipes have different diameters. Besides, the pipe network has multiple pressure measurement taps to check the effects of the different accessories on the flow of air through the pipeline. The pressure taps along the pipe are used to determine the friction factor of the pipe and the pressure drops. The accessories includes are an elbow, an orifice plate, a narrowing and a widening of the pipe.

## SPECIFICATIONS

Unit mounted on an anodized aluminum frame with panels made of painted steel.

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

Test pipes of different diameters and lengths. External diameter: 10, 15 and 25 mm. Length: 1000 and 300 mm approx.

Fourteen pressure taps to measure the pressure gradient along the pipes.

An orifice plate.

Five elbows where the pressure drop can be measured.

A narrowing and a widening to compare pressure drops.

Differential pressure digital indicator.

Relief valve.

Air pressure regulator to adjust the flow to operate in laminar and turbulent conditions.

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.- Use of manometers to measure pressure drops.
- 2.- Air flow measurement with orifice plate.
- 3.- Determination of pressure drops in straight pipes and the friction factor of the pipe.
- 4.- Determination of pressure drops in elbows and angles and the resistance coefficient of each elbow and angle.
- 5.- Understanding the use of Reynolds' numbers.
- 6.- Determination of the laminar or turbulent flow conditions.
- 7.- Calculation of the flow rate from the pressure drop in pipes.

## REQUIRED SERVICES

- Compressed air supply.

## DIMENSIONS AND WEIGHTS

PDCFP:

-Dimensions: 1450 x 1450 x 1000 mm approx.  
(57.08 x 57.08 x 39.37 inches approx.)

-Weight: 30 Kg approx.  
(66 pounds approx.)

**PDCFP/ICAI. Interactive Computer Aided Instruction Software System:**



With no 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.

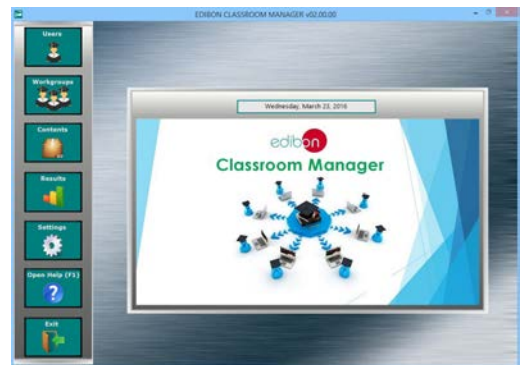
Instructor Software

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

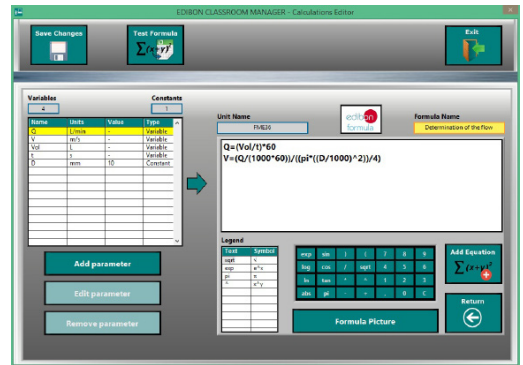
ECM-SOF is the application that allows the Instructor to register students, manage and assign tasks for workgroups, create own content to carry out Practical Exercises, choose one of the evaluation methods to check the Student knowledge and monitor the progression related to the planned tasks for individual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

Innovative features:

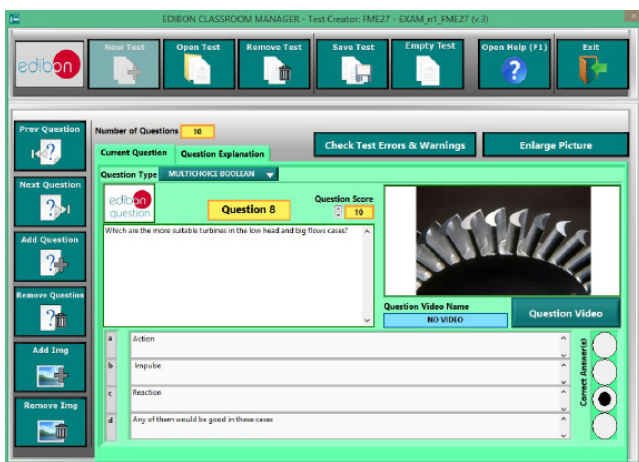
- User Data Base Management.
- Administration and assignment of Workgroup, Task and Training sessions.
- Creation and Integration of Practical Exercises and Multimedia Resources.
- Custom Design of Evaluation Methods.
- Creation and assignment of Formulas & Equations.
- Equation System Solver Engine.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



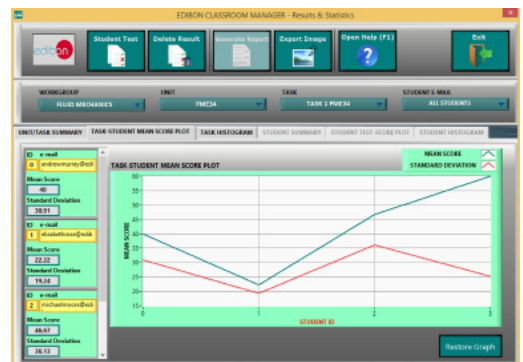
ECM-SOF. EDIBON Classroom Manager (Instructor Software) Application Main Screen



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:

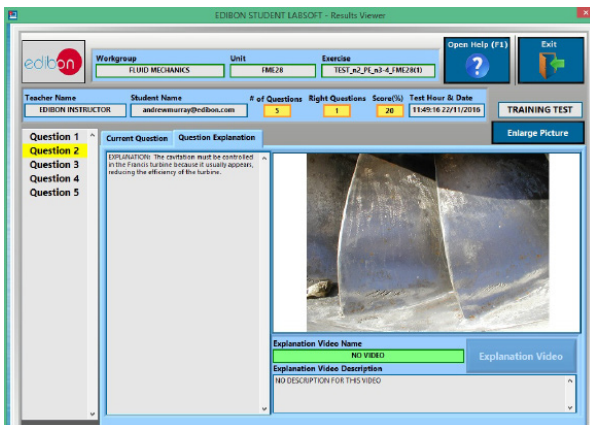
[www.edibon.com/en/files/expansion/ICAI/catalog](http://www.edibon.com/en/files/expansion/ICAI/catalog)



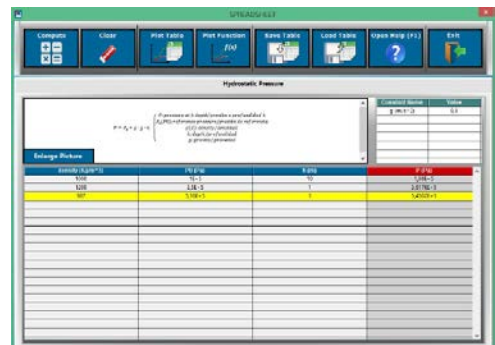
ESL-SOF. EDIBON Student LabSoft (Student Software) Application Main Screen



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:

