Pipe Network Unit, without Hydraulics Bench (FME00)

AMT/B

UNIT ELEMENTS ALLOCATION
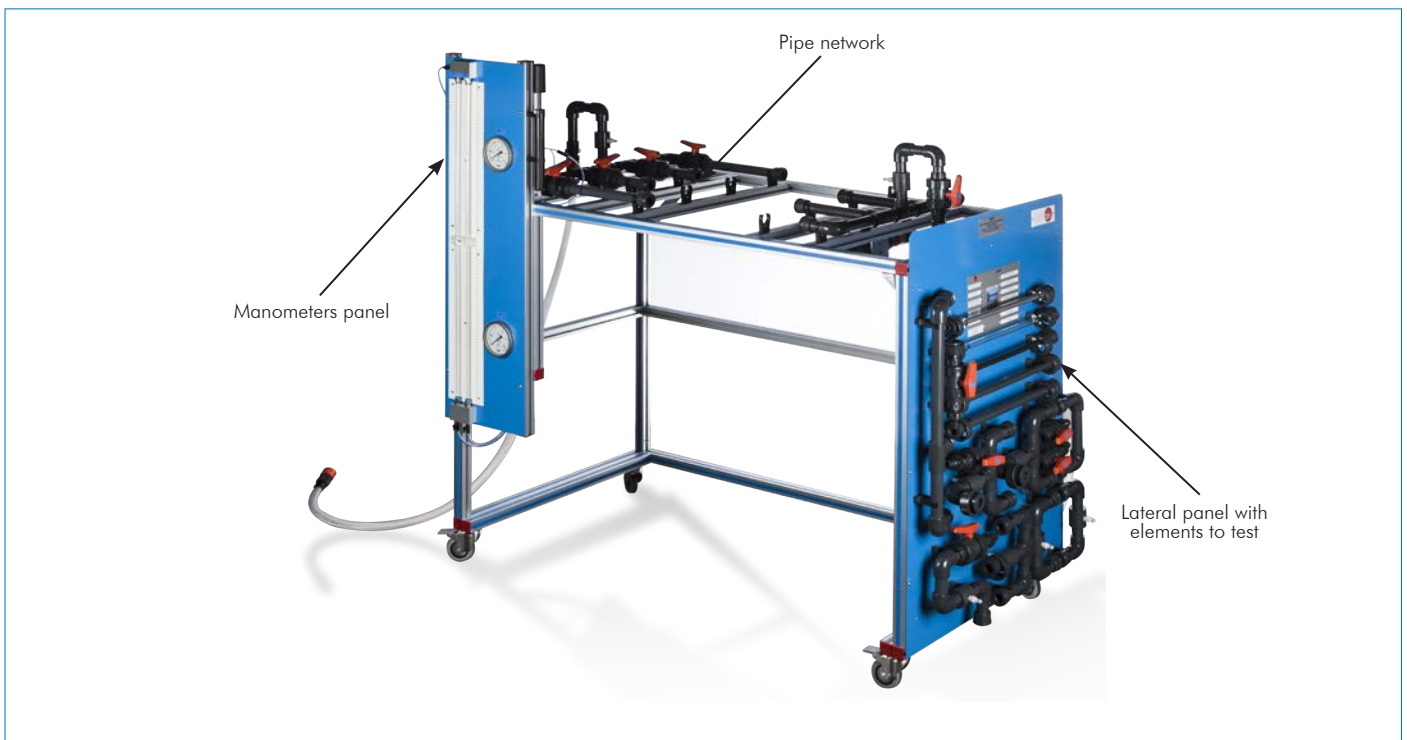
Pipe network

Manometers panel

Lateral panel with elements to test

INTRODUCTION

The Pipe Network Unit, without Hydraulics Bench (FME00), "AMT/B", has been designed by EDIBON to enable different pipe network installations, measuring flow and pressure, and always using water as test fluid.

A typical case is, for instance, a water distribution network in a town. Prediction of pressure and flow and the variations of these parameters generated in the network are of great interest, because with these data, the type of pipes required for such network can be determined with more accuracy.

The objective of this unit is to simulate the problems that could originate in pipe networks, since pipes have different lengths and diameters, as it happens in the cities.

With these studies, the dimensions of the networks will be better understood, to obtain the flow and pressure required.

GENERAL DESCRIPTION

The Pipe Network Unit, without Hydraulics Bench (FME00), "AMT/B", consists of a Pipe network, a lateral panel where all the elements to test are located and a hydraulics bench, which has all the elements and accessories required for the unit to work autonomously.

The valves that some of the elements have in order to form the different circuits are On-Off valves, necessary to distribute the flow along the net.

The unit has a system of anti-blockage pressure takings, located upstream and downstream of each element that is going to be tested. All of them have a quick and easy connection to the pressure measurement devices of the unit.

This unit needs a water supply system. EDIBON recommends the "FME00" unit for that purpose. This hydraulics bench "FME00" has a volumetric measuring system, consisting of a two-level tank. The small one is used to measure low flows and the big one, to measure higher flows. A gauge, which consists of a scale and a transparent tube is connected to a bypass on the base of tank and gives an instantaneous measurement of the water level.

A centrifugal pump located inside the hydraulics bench is used to add energy to the fluid. The flow can be regulated by a control valve located on the hydraulics bench.

SPECIFICATIONS

The "AMT/B" unit mainly consists of:

   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.

   Pipes network.

   Lateral panel where all test elements are located.

   Test pipes:

      Aluminum pipe, 16 mm outer diameter.

      PVC pipe, 25 mm outer diameter.

      PVC pipe, 16 mm outer diameter.

      PVC pipe, 20 mm outer diameter.

      Methacrylate pipe, 16 mm outer diameter.

   Test connections:

      Connection of 4 pipes with drain or outlet valve.

      Connection of 3 pipes.

      Straight connection of a pipe with outlet valve.

      Pipe connection with outlet pipe in the shape of a siphon.

      Connection of 2 pipes with outlet valve. (3 units).

      Connection of 2 pipes with pressure taking.

      Connection of 2 pipes without pressure taking.

   Manometers panel:

      Two water manometers, 1000 mmH$_2$O.

      Two Bourdon type manometers, range: 0 – 2.5 bar.

   Pressure takings in the test elements.

   Valves for distributing the flow to the network.

Cables and Accessories, for normal operation.

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

<u>Required elements</u> (Not included):

   - FME00: Hydraulics Bench.

AMT/B detail

EXERCISES AND PRACTICAL POSSIBILITIES

1.- Head losses in a PVC pipe.

2.- Head losses in an aluminum pipe.

3.- Head losses in a methacrylate pipe.

4.- Study of head losses in pipes of the same material.

5.- Study of head losses in function of the material.

6.- Friction coefficient in a PVC pipe.

7.- Friction coefficient in an aluminum pipe.

8.- Friction coefficient in a methacrylate pipe.

9.- Study of the friction coefficient in function of the material.

10.- Study of the friction coefficient in function of the diameter.

11.- Parallel network configuration for pipes of same material and different diameter.

12.- Parallel network configuration for pipes of different material and same diameter.

13.- Series network configuration for pipes of different material and different diameter.

14.- Series network configuration for pipes of different material and same diameter.

Additional practical possibilities:

15.- Filling the manometers.

REQUIRED SERVICES

- Electrical supply: single-phase 200 VAC – 240 VAC/50 Hz or 110 VAC – 127 VAC/60 Hz.
- Water supply and drain.

DIMENSIONS AND WEIGHTS

AMT/B:

-Dimensions: 1500 x 1000 x 1700 mm approx.

(50.05 x 39.37 x 66.93 inches approx.)

-Weight: 200 kg approx.

(441 pounds approx.)

ADDITIONAL RECOMMENDED ELEMENTS (Not included)

-Chronometer.

REQUIRED ELEMENTS (Not included)

- FME00: Hydraulics Bench.

SIMILAR UNITS AVAILABLE

Offered in this catalog:

- AMT/B. Pipe Network Unit, without Hydraulics Bench (FME00).

Offered in other catalogs:

- AMTC. Computer Controlled Pipe Network Unit, with Hydraulics Bench (FME00).

- AMT. Pipe Network Unit, with Hydraulics Bench (FME00).

AMT/B/ICAI. Interactive Computer Aided Instruction Software:

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.
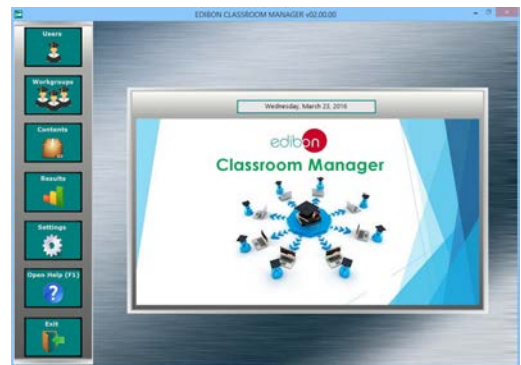
<u>Instructor Software</u>

### - 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
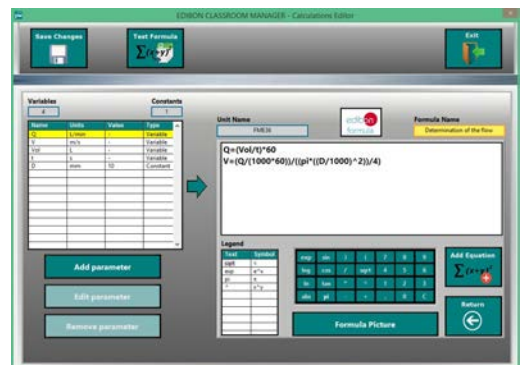
ECAL. EDIBON Calculations Program Package - Formula Editor Screen
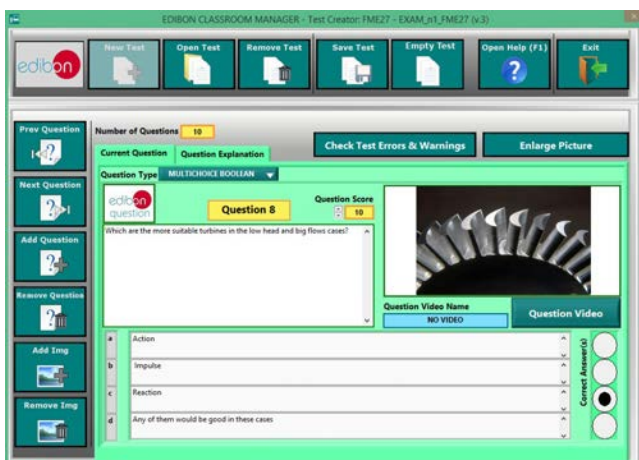
ETTE. EDIBON Training Test & Exam Program Package - Main Screen with Numeric Result Question

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

- 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.

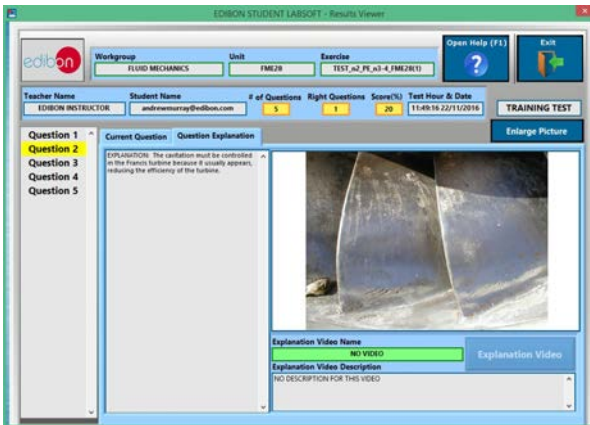For more information see ICAI catalogue. Click on the following link:

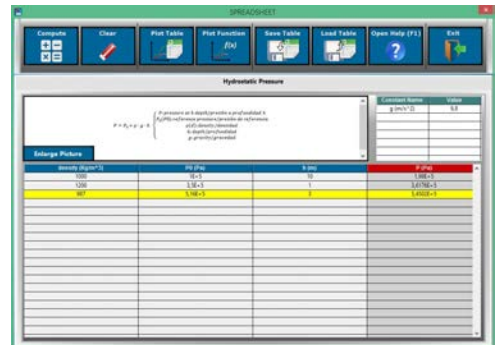www.edibon.com/en/files/expansion/ICAI/catalog

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.

REPRESENTATIVE: