edibon

Engineering and Technical
Teaching Equipment

MFT

INTRODUCTION

Current industrial requirements need increasingly advanced safety systems adapted to every machine requirements.

One of the most important features of all cars as basic equipment is the brakes, one of the most important safety systems in a car (even the most important one), essential for the driver safety, since they are the main means of protection in the road.

The brake system helps to decrease the speed and stop the vehicle, therefore it must work accurately.

There are two types of braking systems in a car: drum brakes and disc brakes.

Drum brakes are located in the wheel itself. They were used in the first cars, but from the 60s and 70s on they were replaced by disc brakes in the front shaft.

GENERAL DESCRIPTION

The Drum Brake Unit, "MFT", allows the study of the forces acting on a drum brake, the difference between the braking torque of the primary shoe and secondary shoe braking systems and determining the coefficient of friction between the drum and the brake shoe, also with the equipment the different types of configurations of existing shoes can be studied.

With the four pins the shoes will be fixed determining the desired configuration of these.

Attached to the drum is a cable with one end towards each side of the drum in which the direction of rotation of the drum will be determined. If the charge is placed to the right, the drum will turn clockwise, if on the contrary the charge is placed to the left of the drum, the drum will turn anti-clockwise.

Applying load to the shoes will determine the force to be performed to brake the drum in different situations.

SPECIFICATIONS

Bench-top unit with adjustable legs.

Anodized aluminum frame and panels in painted steel.

The MFT unit mainly consists of:

    Brake drum of 200 mm in diameter. The rest of components: shoes, plate and springs are inside.

    Two short brake shoes (with friction material lower than 10°) to generate the friction required to brake.

    Fixed shaft made of stainless steel to fasten the disc to which the shoes are attached, diameter = 16 mm.

    Movable shaft made of aluminum to fasten the drum but allowing its rotation, diameter = 50 mm.

    Four pins to fasten the shoes:

        Two short pins to apply the load.

        Two long pins to fasten the shoes according to the desired configuration.

    Connections to hang the weights and apply load to the drum.

    Four 60 mm pulleys made of nylon to support the load application connections.

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

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

- SET C. Steel Hook and Mass Set 3 kg. (2 sets).

<u>Additional recommended elements</u> (Not included):

   - MFTA. Shoes with Full Linings.

   - MFTB. Shoes with Adjustble Linings.

MFT detail

EXERCISES AND PRACTICAL POSSIBILITIES

1.- Understanding of a drum brake.

2.- Brake study with primary and secondary shoe.

3.- Study of the coefficient of friction

4.- Study of the braking difference of the primary and secondary shoe.

5.- Study of different brake configurations.

6.- Calculation of the reactions in the supports

REQUIRED ELEMENTS (Not included)

- SET C. Steel Hook and Mass Set 3 kg. (2 sets).

Each "C Type" set includes:

    1 Weight of 1000 gr (2.20 pounds approx.)

    2 Weights of 500 gr (1.10 pounds approx.)

    2 Weights of 200 gr (0.44 pounds approx.)

    6 Weights of 100 gr (0.22 pounds approx.)

    1 Support hook of 500 gr (1.10 pounds approx.)

DIMENSIONS AND WEIGHTS

MFT:

  -Dimensions: 450 x 650 x 850 mm approx.

                      (17.71 x 25.59 x 33.46 inches approx.)

  -Weight: 20 Kg approx.

             (44 pounds approx.).

ADDITIONAL RECOMMENDED ELEMENTS (Not included)

- MFTA. Shoes with Full Linings.

- MFTB. Shoes with Adjustble Linings.
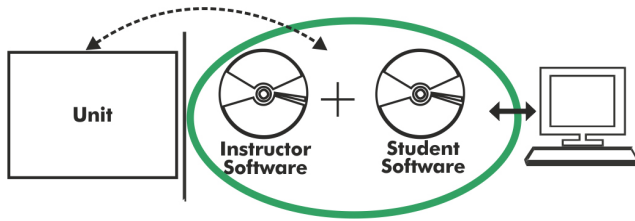
SIMILAR UNITS AVAILABLE

<u>Offered in this catalog</u>:

- MFT. Drum Brake Unit.

<u>Offered in other catalog</u>:

- MFD. Disc Brake Unit.

MFT/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.
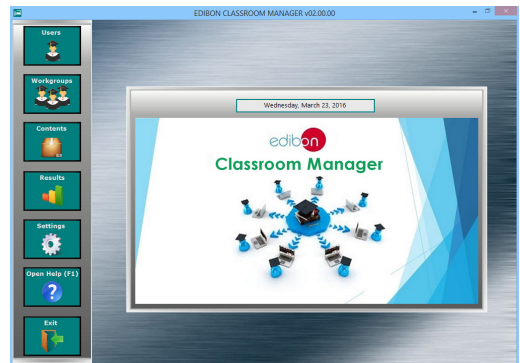
<u>Instructor Software</u>

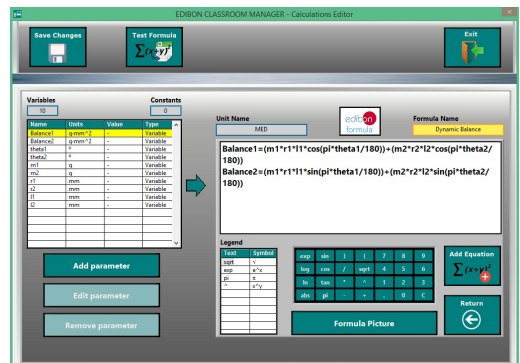### - ECM-SOF. EDIBON Classroom Manager (Instructor Software).

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.
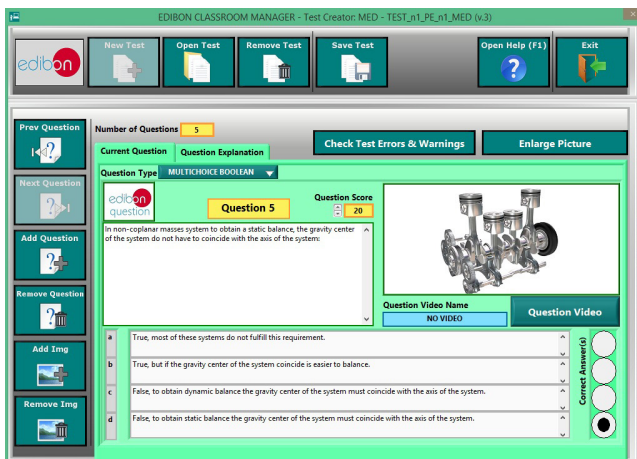
Innovative features:

• 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

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

ECAL. EDIBON Calculations Program Package - Formula Editor Screen

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

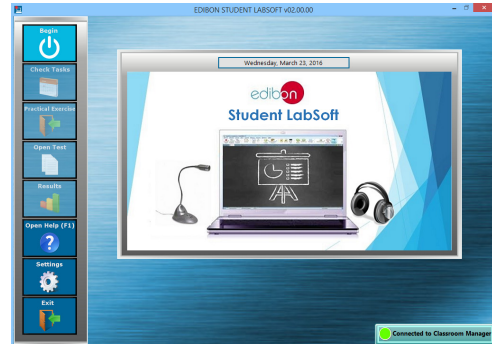## - ESL-SOF. EDIBON Student Labsoft (Student Software).

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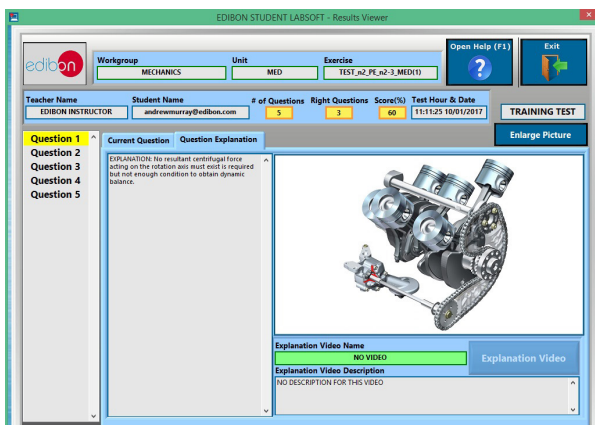
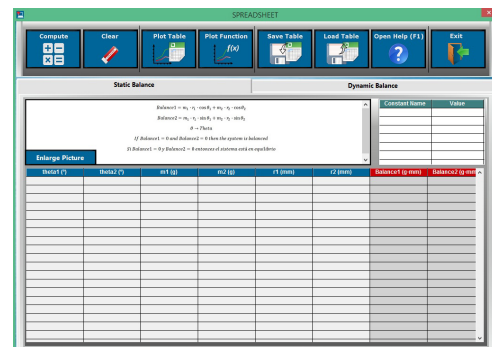www.edibon.com/en/files/expansion/ICAI/catalog

ESL-SOF. EDIBON Student LabSoft (Student Software) Application Main Screen
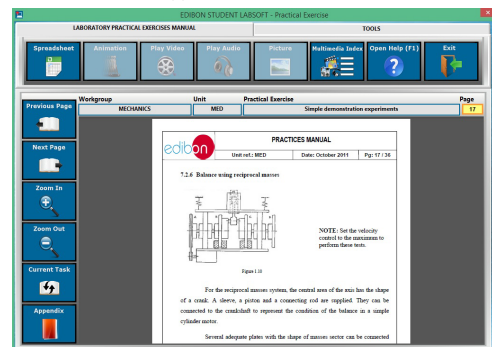
EPE. EDIBON Practical Exercise Program Package Main Screen

ERS. EDIBON Results & Statistics Program Package - Question Explanation

ECAL. EDIBON Calculations Program Package Main Screen

BDAS. Basic Data Acquisition System and Sensors:

For being used with mechanical modules.

BDAS is designed to monitor the measurements of each mechanical module from a computer.

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

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