Engineering and Technical Teaching Equipment

Disc Brake Unit

MFD

www.edibon.com
PRODUCTS
7.- MECHANICS

INTRODUCTION

One of the most important features that all vehicles have, as standard equipment, are the brakes. There is no doubt that the brakes are one of the most important safety systems of the vehicle and that they are essential in terms of integrity, since they are the main means of protection on the road.

Nowadays, there are basically two braking mechanisms: drum brakes and disc brakes.

The disc brake system is, if not the most, one of the most widely used brake systems in the automotive and motorcycle industries. This is because it is a reliable, effective and easy to manufacture mechanism.

Its operation consists of a disc that rotates in conjunction with the wheel to which it is attached and, when braking, the brake pads (high coefficient of friction surfaces) exert a force on it. This force must be sufficient to transform all or part of the kinetic energy of the vehicle into heat, until it is stopped or its speed reduced, depending on the case.

The Disc Brake Unit, "MFD", designed by EDIBON, allows the study of the operation of a disc brake, the effective radius of the brake pads and the suitability of the materials used.

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

GENERAL DESCRIPTION

The Disc Brake Unit, "MFD", has been designed to carry out experiments to investigate the relationship between the normal force acting on the brake pads, the effective radius of the brake pads and the braking torque.

The brake pads are located on bell crank levers to which the load hangers may be attached. A load beam is supplied for use when carrying out experiments with two brake pads.

The support shafts are drilled and pins provided so that the bell crank levers can be located in different radial positions.

Different brake pads materials can be tested.

The braking torque can be determined by attaching masses or weights to a cord wrapped round the pulley on the disc shaft.

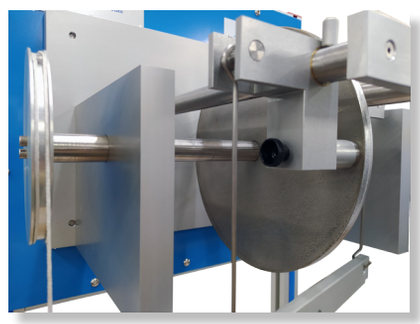
SPECIFICATIONS

Bench-top unit with adjustable legs.

Anodized aluminum frame and panels made of painted steel.

The "MFD" unit mainly consists of:

- Brake disc:
  - Material: AISI 304.
  - Diameter: 230 mm.
- Five pairs of brake pads:
  - Materials: Ferodo, brass, steel, nylon and aluminum.
  - Anodized aluminum support.
- Anodized aluminum pulley to generate torque.
- Three stainless steel support shafts with the possibility of placing the brake pads in different radial positions by means of pins included.



MFD detail

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

Required elements (Not included):

- SET B. Brass Hook and Mass Set 2 kg. (2 sets).

EXERCISES AND PRACTICAL POSSIBILITIES

With this unit we can study and carry out experiments to investigate:

1.- Normal force acting on the brake pads.
2.- Friction and material suitability of the brake pads.
3.- Determination of the effective radius of the brake pads.
4.- Determination of the braking torque.

REQUIRED ELEMENTS

- SET B. Brass Hook and Mass Set 2 kg (2 sets).

Each "B type" set included:

- 6 weights of 200 g. (0.44 pounds)
- 6 weights of 100 g. (0.22 pounds)
- 2 weights of 50 g. (0.11 pounds)
- 2 weights of 20 g. (0.044 pounds)
- 2 weights of 10 g. (0.022 pounds)
- 1 support hook of 100 g. (0.22 pounds)

DIMENSIONS AND WEIGHTS

MFD:

- Dimensions: 470 x 650 x 950 mm approx.
  (18.50 x 25.59 x 37.40 inches approx.).
- Weight: 30 Kg approx.
  (66 pounds approx.).

SIMILAR UNITS AVAILABLE

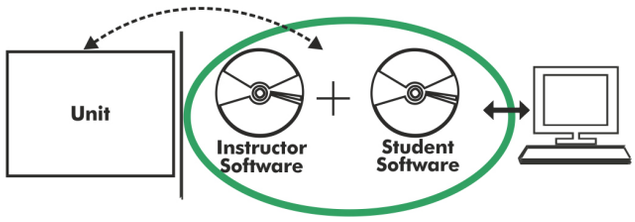
Offered in this catalog:

- MFD. Disc Brake Unit.

Offered in other catalog:

- MFT. Drum Brake Unit.

MFD/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.

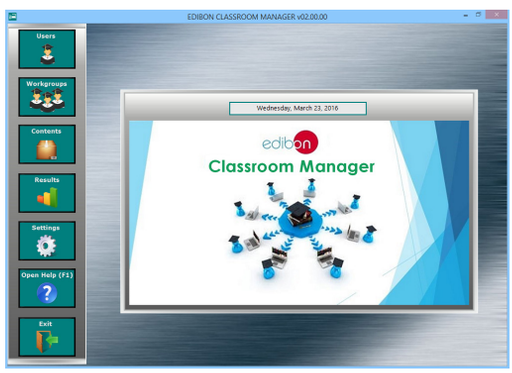
Instructor Software

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

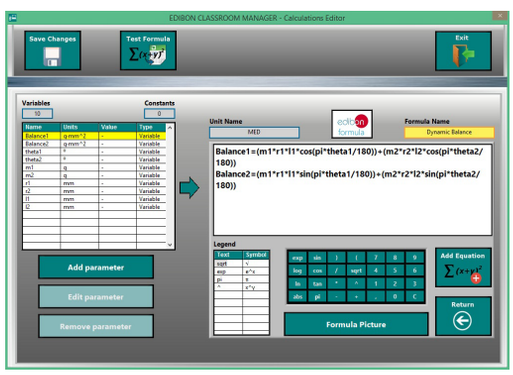
ECM-SOF is the application that allows the Instructor to register students, manage and assign tasks for workgroups, create own content to carry out Practical Exercises, choose one of the evaluation methods to check the Student knowledge and monitor the progression related to the planned tasks for individual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

Innovative features:

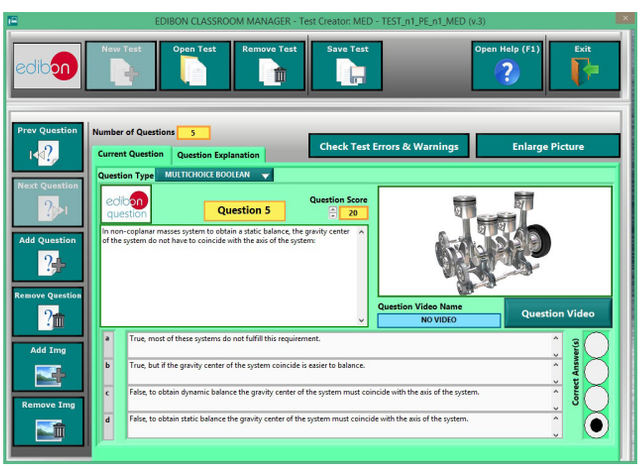
- User Data Base Management.
- Administration and assignment of Workgroup, Task and Training sessions.
- Creation and Integration of Practical Exercises and Multimedia Resources.
- Custom Design of Evaluation Methods.
- Creation and assignment of Formulas & Equations.
- Equation System Solver Engine.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

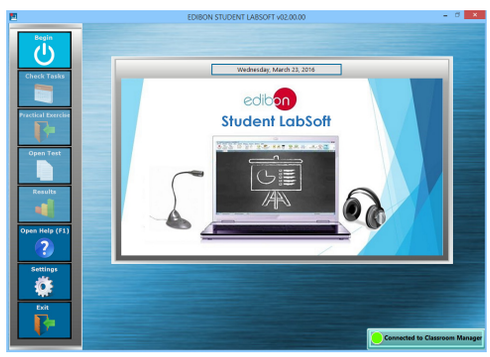
Student Software

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

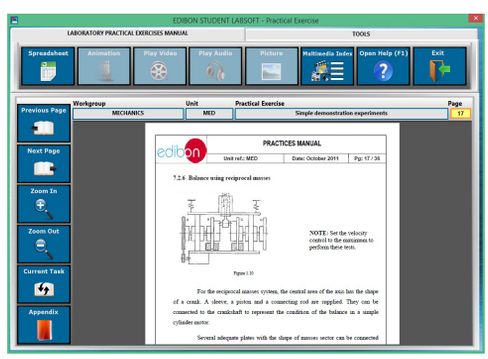
ESL-SOF is the application addressed to the Students that helps them to understand theoretical concepts by means of practical exercises and to prove their knowledge and progression by performing tests and calculations in addition to Multimedia Resources. Default planned tasks and an Open workgroup are 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:

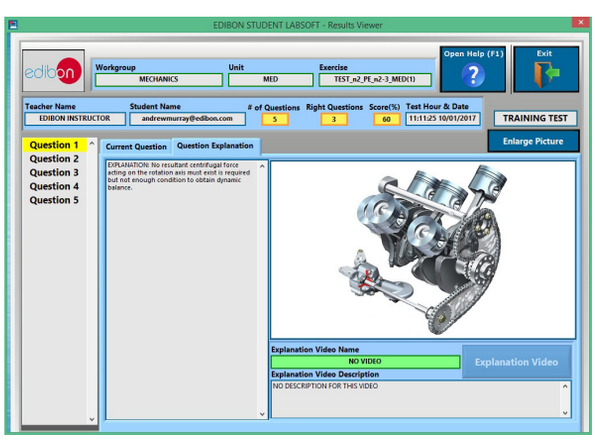
- **Student Log-In & Self-Registration.**
- **Existing Tasks checking & Monitoring.**
- **Default contents & scheduled tasks available to be used from the first session.**
- **Practical Exercises accomplishment by following the Manual provided by EDIBON.**
- **Evaluation Methods to prove your knowledge and progression.**
- **Test self-correction.**
- **Calculations computing and plotting.**
- **Equation System Solver Engine.**
- **User Monitoring Learning & Printable Reports.**
- **Multimedia-Supported auxiliary resources.**



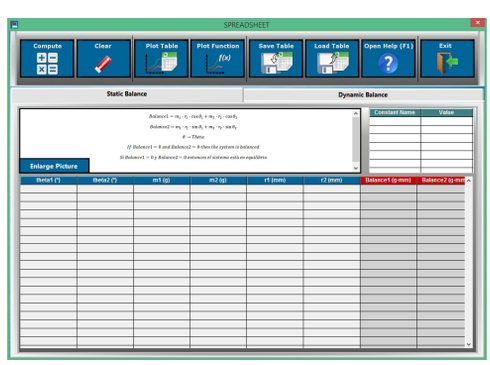
ESL-SOF. EDIBON Student LabSoft (Student Software) Application Main Screen



EPE. EDIBON Practical Exercise Program Package Main Screen



ERS. EDIBON Results & Statistics Program Package - Question Explanation



ECAL. EDIBON Calculations Program Package Main Screen

For more information see **ICAI** catalogue. Click on the following link:
www.edibon.com/en/files/expansion/ICAI/catalog

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

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REPRESENTATIVE: