



INTRODUCTION

Bearings are tribological elements that transport load while they are in contact with another body and have a relative motion between them, which can be sliding or rolling motion.

Basically, there are two different types of bearings: slide bearings and rolling bearings. Other types include hydrodynamic bearings, which support their load on a thin layer of liquid or gas; magnetic bearings, which use magnetic fields to transport their loads; bending bearings, where the load is supported by a folded element; and high precision bearings, used in clocks.

In the slide bearings, the fixed and the movable surfaces, separated by a lubricant film, "rub" when sliding. They are made up of a support perfectly coupled on a hard bushing, which is the bearing itself.

In the bearings, the journal of the shaft and the rolling surface of the support are separated by rolling elements, so that a rolling movement is generated with the rotation of the journal or the bearing, not a sliding movement, like the previous case. They consist of two rolling rings separated by some rolling bodies, inserted between them, whose shape varies according to its use. They can be balls, rollers, cylinders, needles, etc.

GENERAL DESCRIPTION

The Unit for Studying Bearing Friction, "MBF", has been designed to study sliding friction in slide bearings and rolling bearings. Since rolling friction is very little, rotational dynamics basic tests can be performed with the inertia flywheel.

It consists of a shaft with a cable drum and inertia flywheel supported on the bearings under study.

Three pairs of exchangeable bearings shells made of different material, a pair of ball bearings and a pair of rolling bearings are supplied to study friction in different types of bearings.

Different masses are hanged from the drum cable, generating different torques equivalent to the frictional moment when starting the rotation.



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

SPECIFICATIONS

Bench-top unit with adjustable legs.

Anodized aluminum frame and panels made of painted steel.

The "MBF" unit consists mainly of:

Shaft:

Bearing journal: 17 mm.

Cable drum with hook to hang the masses.

Inertia flywheel:

Diameter: 300 mm.

Thickness: 40 mm.

Mass: 22.5 Kg.

Six bearing shells as slide bearings:

Two slide bearing shells made of bronze.

Two slide bearing shells made of Teflon.

Two slide bearing shells made of GG-25 cast iron.

Two ball bearings:

Type: deep groove.

Inlet diameter: 17 mm.

Outlet diameter: 40 mm.

Ring width: 12 mm.

Two rolling bearings:

Inlet diameter: 17 mm.

Outlet diameter: 40 mm.

Ring width: 13.5 mm.

In order to carry out the practices with "MBF" unit, a "B type" set of weights is required. (See "Required Accessories" section)

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.- Study and comparison of slide bearings and rolling bearings.
 - 2.- Experimental determination of the coefficient of friction in slide bearings.
 - 3.- Comparison of the experimental friction in slide bearings made of various materials.
 - 4.- Experimental determination of the coefficient of friction in rolling bearings.
 - 5.- Comparison of the experimental friction in ball bearings and roller bearings.
- Additional practical possibilities:
- 6.- Basic studies about rotational dynamics.

REQUIRED ACCESSORIES (Not included)

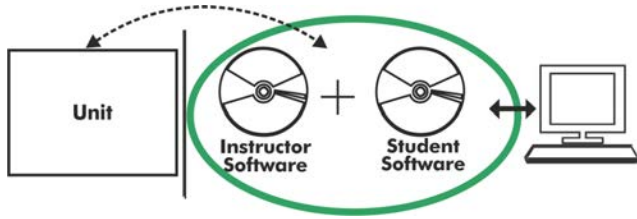
- One "B type" set of weights. The "B type" set includes:
 - 6 weights of 200 g. (0.44 pounds)
 - 6 weights of 100 g. (0.22 pounds)
 - 2 weights of 50 g. (0.11 pounds)
 - 2 weights of 20 g. (0.044 pounds)
 - 2 weights of 10 g. (0.022 pounds)
 - 1 support hook of 100 g. (0.22 pounds)

DIMENSIONS AND WEIGHTS

MBF:

- Dimensions: 600 x 600 x 650 mm approx.
(23.62 x 23.62 x 25.59 inches approx.)
- Weight: 25 Kg approx.
(55.11 pounds approx.)

MBF/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.

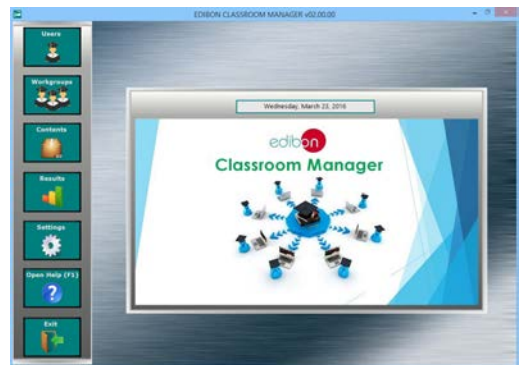
Instructor Software

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

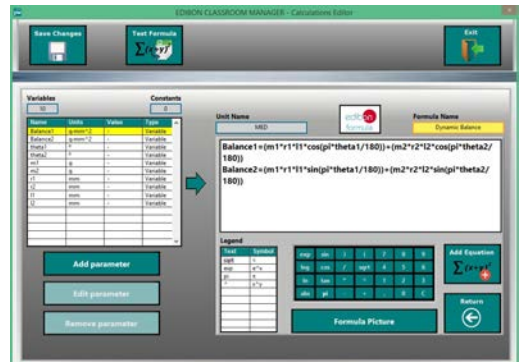
ECM-SOF is the application that allows the Instructor to register students, manage and assign tasks for workgroups, create own content to carry out Practical Exercises, choose one of the evaluation methods to check the Student knowledge and monitor the progression related to the planned tasks for individual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

Innovative features:

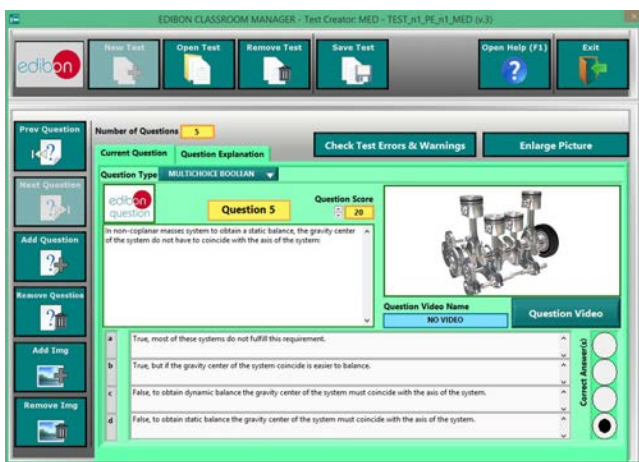
- User Data Base Management.
- Administration and assignment of Workgroup, Task and Training sessions.
- Creation and Integration of Practical Exercises and Multimedia Resources.
- Custom Design of Evaluation Methods.
- Creation and assignment of Formulas & Equations.
- Equation System Solver Engine.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

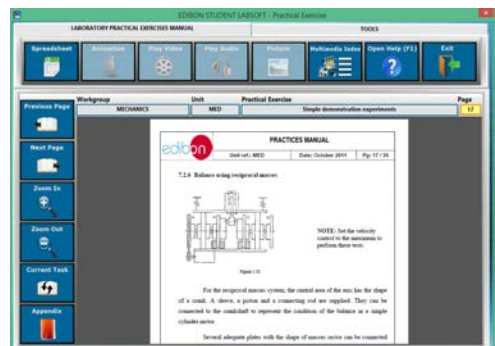
- Student Log-In & Self-Registration.
- Existing Tasks checking & Monitoring.
- Default contents & scheduled tasks available to be used from the first session.
- Practical Exercises accomplishment by following the Manual provided by EDIBON.
- Evaluation Methods to prove your knowledge and progression.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

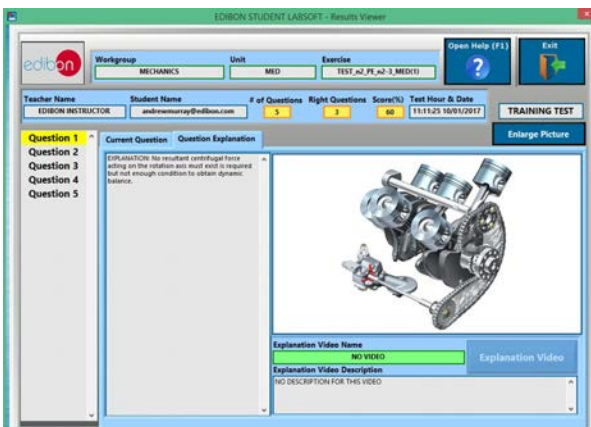
www.edibon.com/en/files/expansion/ICAI/catalog



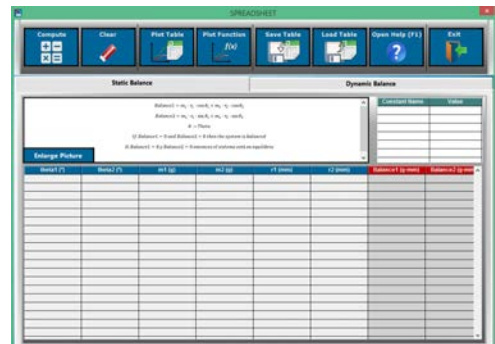
ESL-SOF. EDIBON Student LabSoft (Student Software)
Application Main Screen



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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REPRESENTATIVE:

