



## INTRODUCTION

The Charpy and Izod Impact Testing Unit, "EEICI", is a unit designed for carrying out resilience or impact tests on plastic materials. The resilience test is a type of destructive test that gives us the toughness measure of a material and indirectly its ductility.

A material's toughness can be defined as the capacity for absorbing the energy in the plastic area prior to its rupture in an impact test.

There are several type of impact or resilience tests. The most common ones are those performed with a pendulum.

The resilience test involves leaving a pendulum of P weight fall freely from an initial height H against a specimen placed in the lower part.

The pendulum breaks the specimen and afterwards reaches a height h. We can compare the initial potential energy from H to the final potential energy at h to see how much energy was absorbed by the specimen.

Depending on the way the specimen is supported, there are impact tests that use the Charpy method, in which it is supported on two ends and impact tests that use the Izod method, in which the one of the specimen's ends is fitted.



Certificate of Approval of the  
Quality Management System



European Union Certificate  
(total safety)



UL and CSA Regulations  
(All our products are manufactured according  
to current UL and CSA regulations)



Certificate of Approval of the  
Environmental Management System



Worlddidac Association  
Certificate of Membership

## GENERAL DESCRIPTION

The Charpy and Izod Impact Testing Unit, "EEICI", consists of a pendulum supported on bearings with an arm of 330 mm long and a fastening system in the initial position of the test. The suitable hammer either for Charpy or Izod test is screwed to one of its ends.

The Charpy hammer is "C" shaped and is used for impact tests on specimens horizontally supported at both ends and the Izod hammer is used to strike on vertically fixed specimens.

The unit has clamps for each hammer, formed by two supports located in the center of the base to put the specimen, being supported at their two ends in case of the Charpy clamp and fixed and vertical in case of the Izod clamp.

The energy employed to break the specimen will be indicated by the displacement of the pointer of a graduated disc.

The test specimens have notches for an easier breakage and are made of PVC, teflon and methacrylate according to the standards:

- Charpy method: ISO 179.
- Izod method: ISO 180.

## SPECIFICATIONS

Bench-top unit with adjustable legs.

Anodized aluminum frame and panels made of painted steel.

The "EEICI" unit mainly consists of:

Pendulum: It is supported by bearings and has an length of 330 mm. On one of its ends we can mount the appropriate hammer for each test, be it Charpy or Izod.

Initial angle: 150°.

Charpy potential energy: 5 J, 7.5 J and 10 J.

Izod potential energy: 8.5 J.

Hammers:

The Charpy Hammer has the shape of a "C" and it is used for impact tests on specimens that are supported on both ends.

The Izod Hammer is used to impact on specimens that are fitted vertically.

Charpy clamp. It is composed with the accessories needed for supporting the specimens, according to standard ISO 179.

Izod clamp. It is composed with the accessories needed for supporting the specimens, according to standard ISO 180.

Allen keys in order to tighten the specimens into the clamps.

Graduated disc with a pointer will mark the energy used to break the specimen.

Specimens made in different plastic materials:

They have a notch in order to make their breaking easier.

They are made of PVC, PTFE and PMMA.

Their dimensions are 80 mm length and its cross section is 10 mm x 4 mm.

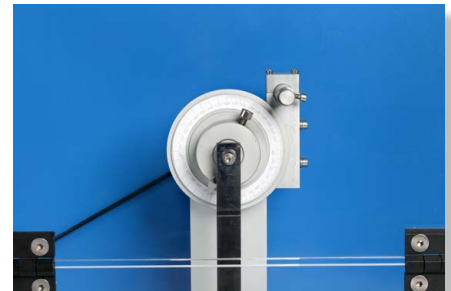
Support system for the pendulum at the starting point of the test.

Protection transparent cover that allows the safe viewing of the experiments by the student.

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

Additional recommended elements (Not included):

- EEICI-SP. Spare Specimens for EEICI.



EEICI detail

## EXERCISES AND PRACTICAL POSSIBILITIES

- 1.- Experimental determination of the energy needed in order to break specimens of different materials using the Charpy method.
- 2.- Experimental determination of the energy necessary to break specimens of different materials using the Izod method.
- 3.- Experimental determination of the pendulum's friction losses.

## DIMENSIONS AND WEIGHTS

### EEICI:

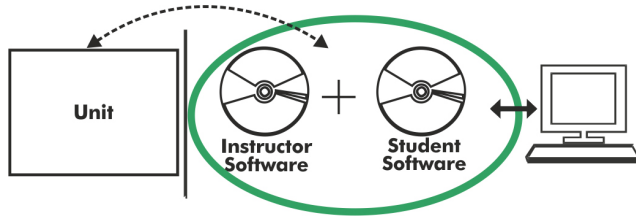
- Dimensions: 1000 x 600 x 600 mm approx.  
(39.37 x 23.62 x 23.62 inches approx.).
- Weight: 70 Kg approx.  
(154.32 pounds approx.)

## ADDITIONAL RECOMMENDED ELEMENTS (Not included)

- EEICI-SP. Spare Specimens for EEICI.

### Includes:

- 2 Specimens for Charpy Test (PVC).
- 2 Specimens for Charpy Test (PMMA).
- 2 Specimens for Charpy Test (PTFE).
- 2 Specimens for Izod Test (PVC).
- 2 Specimens for Izod Test (PMMA).
- 2 Specimens for Izod Test (PTFE).

**EEICI/ICAL. Interactive Computer Aided Instruction Software:**

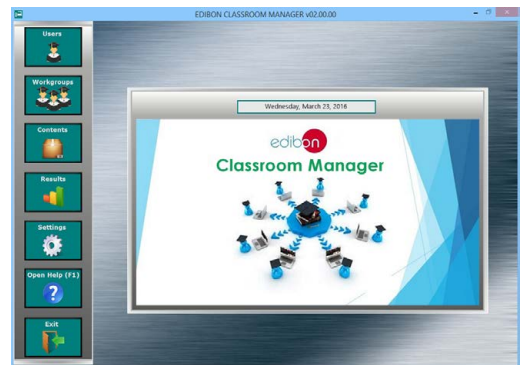
With no physical connection between unit and computer, this complete software package consists of an Instructor Software (EDIBON Classroom Manager -ECM-SOF) totally integrated with the Student Software (EDIBON Student Labsoft -ESL-SOF). Both are interconnected so that the teacher knows at any moment what is the theoretical and practical knowledge of the students.

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

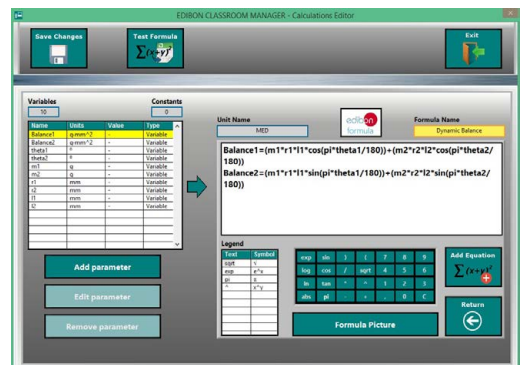
ECM-SOF is the application that allows the Instructor to register students, manage and assign tasks for workgroups, create own content to carry out Practical Exercises, choose one of the evaluation methods to check the Student knowledge and monitor the progression related to the planned tasks for individual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

Innovative features:

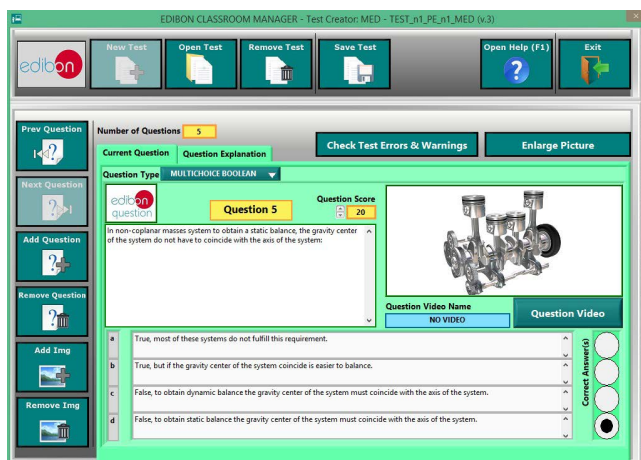
- User Data Base Management.
- Administration and assignment of Workgroup, Task and Training sessions.
- Creation and Integration of Practical Exercises and Multimedia Resources.
- Custom Design of Evaluation Methods.
- Creation and assignment of Formulas & Equations.
- Equation System Solver Engine.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

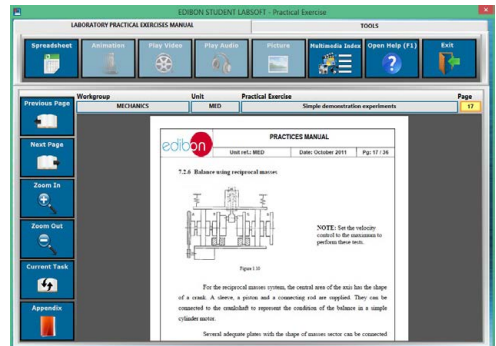
- **Student Log-In & Self-Registration.**
- **Existing Tasks checking & Monitoring.**
- **Default contents & scheduled tasks available to be used from the first session.**
- **Practical Exercises accomplishment by following the Manual provided by EDIBON.**
- **Evaluation Methods to prove your knowledge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

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

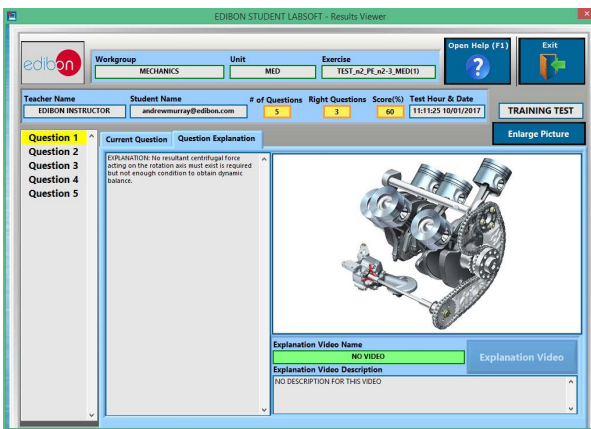
[www.edibon.com/en/interactive-computer-aided-instruction-software](http://www.edibon.com/en/interactive-computer-aided-instruction-software)



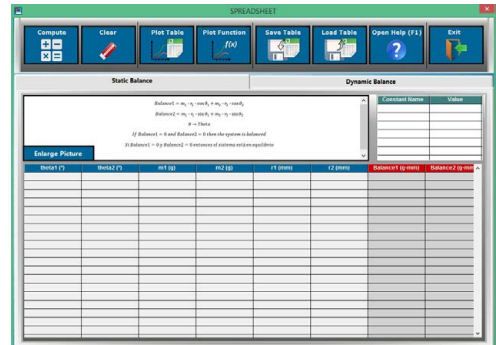
ESL-SOF. EDIBON Student LabSoft (Student Software)  
Application Main Screen



EPE. EDIBON Practical Exercise Program Package Main Screen



ERS. EDIBON Results & Statistics Program Package - Question Explanation



ECAL. EDIBON Calculations Program Package Main Screen

**BDAS. Data Acquisition System and Sensors:**

For being used with mechanical units.

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

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



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Edition: ED01/24  
Date: January/2024

REPRESENTATIVE:

