



INTRODUCTION

Creep occurs due to the deformation of a material subjected to constant stress and temperature.

The main application of the study of creep is the analysis of the resistance characteristics of materials to be able to design pieces and elements able to support tolerable elongations during their working life.

The Creep Testing Unit "EEFCR" allows the student to determine experimentally the yield strength of plastic materials and the relation of deformation due to yield with time and temperature.

GENERAL DESCRIPTION

The Creep Testing Unit "EEFCR" for the creep testing is mounted on a structure of aluminum profiles which a painted steel panel is supported on.

The EEFCR unit is designed to carry out experiments on specimens of plastic materials. Due to the dependence on the temperature in this type of tests, there is a temperature conditioning box where the experiments are carried out. It is made of acrylic, which allows to observe the experiment's development. The conditioning box is divided in two sections: the first has the placement for an isotherm bag that allows heat or cold the inside of the box, and the second one is for the placement of the specimens. Inside it, there is also an alcohol thermometer to measure the working temperature.

To carry out a creep experiment a constant load of tension must be applied to the specimen. The EEFCR unit has a load arm over which a hook for weights is hung on an end. This load arm multiplies the load applied to the specimen. The student will be able to apply loads by adding the weights supplied. The reaction will be the force applied to the specimen.

The unit has a dial indicator to measure the specimen elongation in a continuous way. The dial indicator measures the arm fall relevant to the horizontal and the specimen elongation is obtained by a simple trigonometric relation.



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)



Certificate and Worlddidac Member

SPECIFICATIONS

Bench-top unit with adjustable legs.

Anodized aluminum structure and panels in painted steel.

The EEFCR unit mainly consists of:

Temperature conditioning box made of methacrylate. Here, the adequate temperature conditions to carry out the experiment are created:

Inside it, the specimen which will be experimented is located.

To reach the temperature, an isotherm bag will be used.

To know the experiment conditions, there is a thermometer at the upper part of the box, range: from -10°C to 110°C .

Load arm:

It is a stainless steel beam on which the loads are applied to the specimen.

It pivots on a shaft inserted in the support column.

Tensile stress range: $0\text{-}35\text{ N/mm}^2$.

Support screw for supporting the load arm before starting the experiment.

Clamps. They are into the space to fasten the specimens.

Dial indicator:

To measure the elongation of the specimen which is under the load and temperature concrete conditions.

Range: $0\text{-}10\text{ mm}$.

Precision: 0.01 mm .

Allen key to adjust the dial indicator.

Specimens:

Flat type.

Made in different plastic materials: PVC and Polypropylene.

They have a section of $5\text{ mm} \times 2\text{ mm}$ to make the experiments easier.

In order to carry out some of the practices with EEFCR unit, a "C" 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.- Experimental determination of the behaviour of different plastic materials.
- 2.- Experimental determination of the creep limit of different plastic materials.
- 3.- Determination of the temperature effect in the creep behaviour of a plastic material.
- 4.- Relation of the deformation caused by the creep in function of the time. Phases of the creep.

REQUIRED ACCESSORIES (Not included)

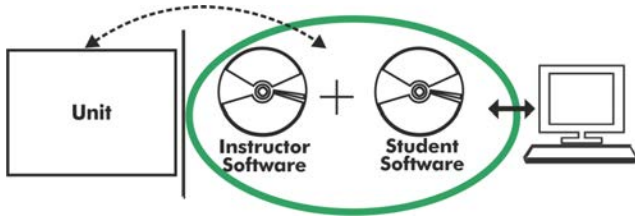
- 1 "C Type" Set of weights. Each "C Type" Set includes:
 - 1 Weight of 1000 gr. (2.20 pounds approx.)
 - 2 Weights of 500 gr. (1.10 pounds approx.)
 - 2 Weights of 200 gr. (0.44 pounds approx.)
 - 6 Weights of 100 gr. (0.22 pounds approx.)
 - Support hook of 500 gr. (1.10 pounds approx.)

DIMENSIONS AND WEIGHT

- Dimensions: $700 \times 350 \times 600\text{ mm}$. approx.
($27.56 \times 13.78 \times 23.62\text{ inches}$ approx.).
- Weight: 25 Kg . approx.
(55.1 pounds approx.).

Optional

EEFCR/ICAI. Interactive Computer Aided Instruction Software System:



With no physical connection between unit and computer (PC), 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 Workgroups, Tasks and Training sessions.

Creation and Integration of Practical Exercises and Multimedia Resources.

Custom Design of Evaluation Methods.

Creation and assignment of Formulas & Equations.

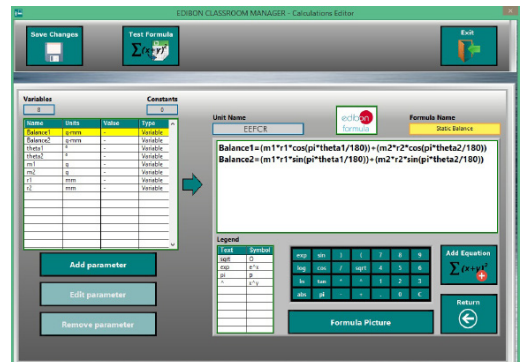
Equation System Solver Engine.

Updatable Contents.

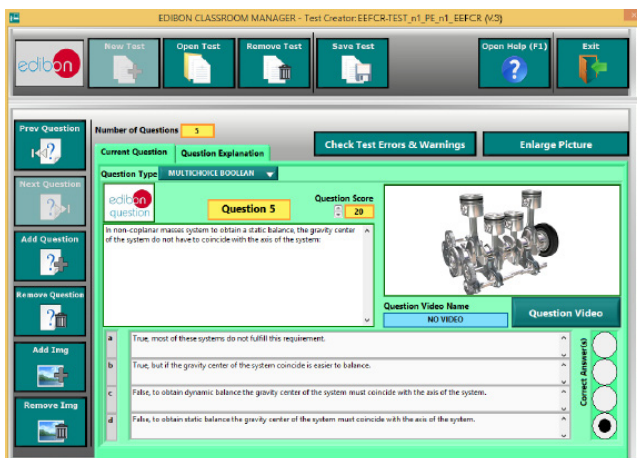
Report generation, User Progression Monitoring and Statistics.



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.

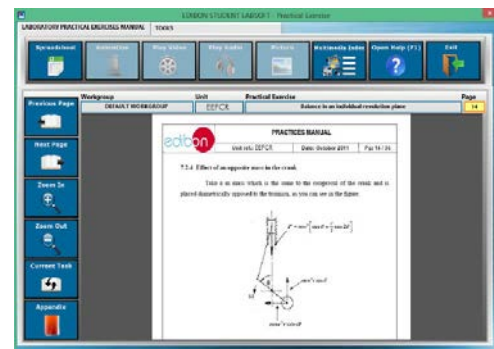
Innovative features:

- 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.**

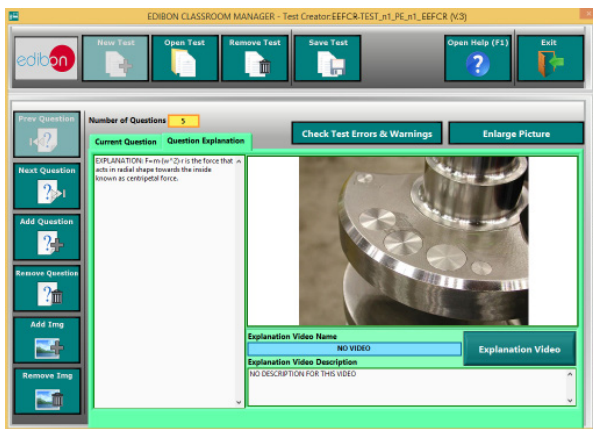
For more information see ICAI catalogue. Click on the following link:
www.edibon.com/products/catalogues/en/ICAI.pdf



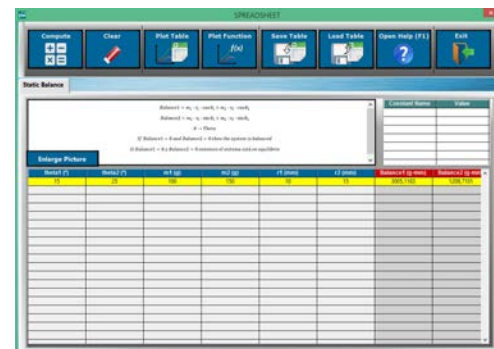
ESL-SOF. EDIBON Student LabSoft (Student Software)
Application Main Screen



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 (PC).

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



C/ Del Agua, 14. Polígono Industrial San José de Valderas.
28918 LEGANÉS. (Madrid). SPAIN.
Phone: 34-91-6199363 FAX: 34-91-6198647
E-mail: edibon@edibon.com WEB site: www.edibon.com

Edition: ED01/16
Date: December/2016

REPRESENTATIVE:

