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 Products
 Products range
 Units
 7.- Mechanics & Materials

INTRODUCTION

Buckling is a phenomenon of structural instability that is generally suffered by slender structures under compression. A perturbing force acts over them and causes a failure on them before reaching the critical compressive stress.

The Strut Buckling Unit "MFLT" is an unit, manufactured by EDIBON, to demonstrate the buckling of structures under compression.

GENERAL DESCRIPTION

The Strut Buckling Unit "MFLT" allows the student to obtain experimentally the buckling critical load of slender struts subjected to compression. The unit allows to study the buckling of pieces of different lengths, ranging from 300 mm. to 625 mm., to which different support conditions can be applied:

- Pin-joined end conditions.
- Rigidly fixed end conditions.
- One end pinned and the other fixed.

To carry out the practical exercises correctly, it is very important to apply the force with an only axial component. For that purpose, the MFLT unit has a differential screw placed at one end, which allows the system compression.

To measure the compression force exerted on the structure, there is a system composed of an elastic ring whose deformation is measured. The compression force will be directly proportional to the deformation registered in a dial gauge.



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 frame and panels in painted steel.

The MFLT unit mainly consists of:

- Two guides to slide the movable clamp, made of stainless steel, that allow to test pieces up to 650 mm long.
- Universal supports to fasten the test piece, according to the required end conditions.
- Movable clamp located at one end. It has a crank to adjust the test piece to the desired length. Besides, it has a system to measure the applied force, by measuring the deformation of an elastic ring. The clamp can be placed in pinned end or fixed end position, according to the desired practical exercise.
- Fixed clamp, which has several functions. The knob has two positions according to the desired end conditions for the clamp. Other function is the system to apply the force to the test piece, consisting of a crank, that compress the structure when it is turned to the right.
- Differential screw to allows the system compression.
- Dial gauge, with a measuring range of 0-5mm. and accuracy of 0.01 mm., to determine the compression load to which the test piece is subjected.

Nine test pieces of different length are included. They are made of tempered steel and their dimensions are 20 mm. wide and 1.5 mm. Thick:

- Test piece 300 mm. Long.
- Test piece 350 mm. Long.
- Test piece 400 mm. Long.
- Test piece 450 mm. Long.
- Test piece 500 mm. Long.
- Test piece 550 mm. Long.
- Test piece 600 mm. Long.
- Test piece 615 mm. Long.
- Test piece 625 mm. long.



MFLT Detail

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

EXERCISES AND PRACTICAL POSSIBILITIES

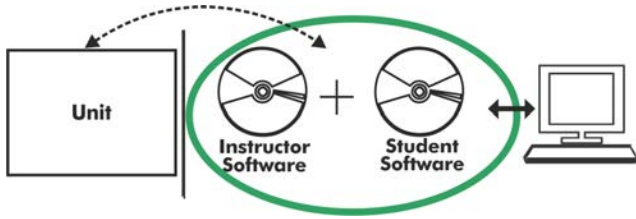
- 1.- Study of deformation in beams.
- 2.- Demonstration of the Euler theory for beams.
- 3.- Determination of the relationship between buckling load and slenderness modulus for axial loads.
- 4.- Determination of the critical buckling load of a flat test piece, pinned at both ends.
- 5.- Determination of the critical buckling load of a flat test piece, with one fixed end and one pinned end.
- 6.- Determination of the critical buckling load of a flat test piece with both ends fixed.

DIMENSIONS AND WEIGHT

- Dimensions: 1000 x 300 x 250 mm. approx. (39.37 x 11.81 x 9.84 inches approx.)
- Weight: 15 Kg. approx. (33 pounds approx.)

Optional

MFLT/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.

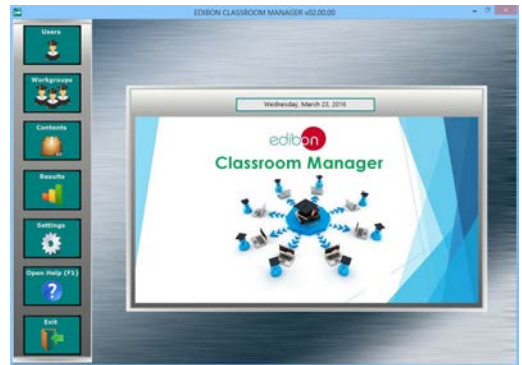
Instructor Software

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

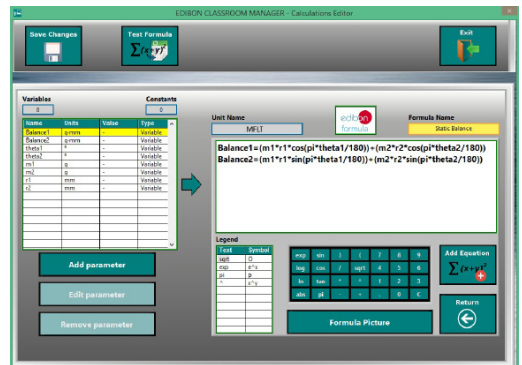
ECM-SOF is the application that allows the Instructor to register students, manage and assign tasks for workgroups, create own content to carry out Practical Exercises, choose one of the evaluation methods to check the Student knowledge and monitor the progression related to the planned tasks for individual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

Innovative features:

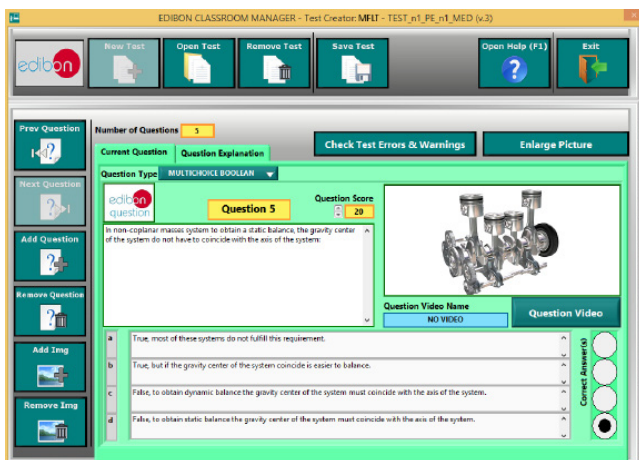
- User Data Base Management.
- Administration and assignment of Workgroups, Tasks and Training sessions.
- Creation and Integration of Practical Exercises and Multimedia Resources.
- Custom Design of Evaluation Methods.
- Creation and assignment of Formulas & Equations.
- Equation System Solver Engine.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

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.

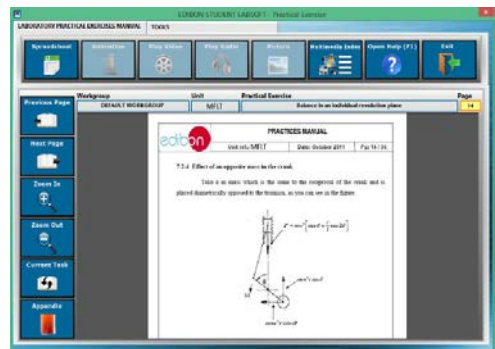
Innovative features:

- 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.**

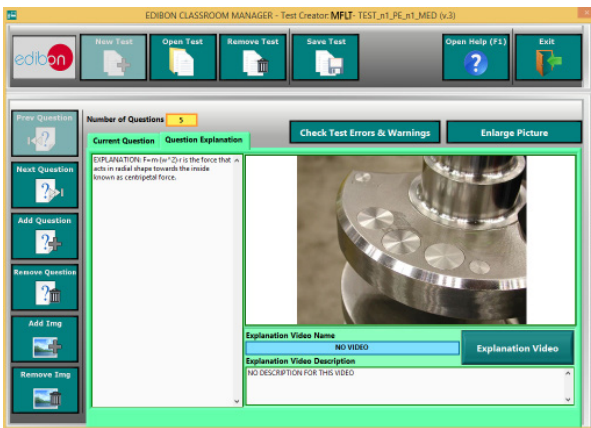
For more information see ICAI catalogue. Click on the following link:
www.edibon.com/products/catalogues/en/ICAI.pdf



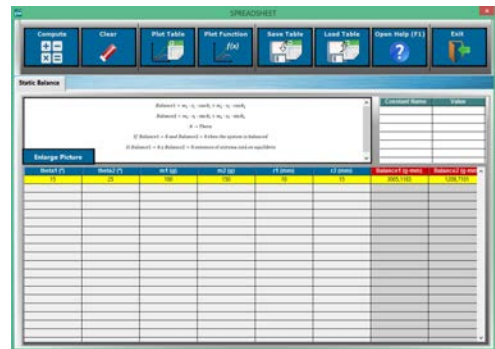
ESL-SOF. EDIBON Student LabSoft (Student Software) Application Main Screen



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.



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Edition: ED01/16
Date: November/2016

REPRESENTATIVE:

