

INTRODUCTION

A combined drive is carried out when a motion is transmitted between more than two drive shafts.

In a combined drive, the drive is made between more than two shafts simultaneously, which requires that two sprocket wheels are compulsorily assembled in each intermediate shaft. One of the sprocket wheel engages with the drive wheel, which is the one that provides motion, while the other is connected to the next shaft to which it drags.

As a result of combining the different types of gear, the well-known transfer functions can be modified or new configurations can be made to obtain new properties. Connections can be parallel or series. It is common to make series connections of different levels of sprocket wheels to obtain a higher drive ratio.

The Unit to Study Combined Drives Assembly, "MCDA", allows carrying out advanced exercises related to the basic essentials of drive technology, basically focusing on practical assembly of the gear elements.

GENERAL DESCRIPTION

The Unit to Study Combined Drives Assembly, "MCDA", allows carrying out advanced exercises and provides an understanding of the significant components and arrangements of the mechanical drive technology.

With this unit, practices can be carried out to ensure the learning of six simple forms of drive in different combinations. Through these six simple forms of drive, different configurations can be made putting your own ideas into practice.

Some configurations that can be carried out are: a combined drive of a worm and bevel gears, a combined drive of a spur gear and a worm, a combined drive of spur and bevel gears, a double-belt drive, a double spur gear, a rack gear with spur gear drive and chain drive, and a spur gear drive.

The steps that need to be followed to ensure an appropriate learning are:

- Approach to tasks and understanding of diagrams.
- Part assembly and adjustment, gear calibration and verification.
- Carrying out relevant calculations.

The unit drive will be carried out through a flywheel. A high level of precision will be obtained in gear adjustment thanks to the anodized aluminum frame.

A carrying case will be provided to facilitate the transport and ensure the protection of the components required for the assembly and learning.

EDIBON offers three drive assembly kits: Unit to Study Simple Drives Assembly, "MSDA"; Unit to Study Combined Drives Assembly, "MCDA"; and Unit to Study Gear Train Assembly, "MGTA".

SPECIFICATIONS

Bench-top unit with adjustable legs.

Aluminum carrying case.

Anodized aluminum frame and panels made of painted steel.

Double belt:

Toothed belt pulleys:

Number of teeth $z = 30, 32, 48, 60$.

Simple chain:

Chain sprocket wheels:

Number of teeth $z = 20, 30$.

Simple spur gears:

Module $m = 2$; number of teeth $z = 20, 32, 40, 50$.

Module $m = 1.5$; number of teeth $z = 32, 40, 44$.

Bevel gear torque:

Module $m = 2$; number of teeth $z = 25$.

Angle between shafts 90° .

Worm gear:

Worm: $z = 3$.

Helical wheel: $z = 37$.

Rack gear.

Toolkit.

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.- Understanding the relevant components of drives.
- 2.- Understanding the fundamental forms of drive:
 - Double-belt drive.
 - Chain drive with an idler wheel and a spur gear drive.
 - Double spur gear.
 - Combined drive of bevel pinions and spur gears.
 - Combined drive of worms and bevel gears.
 - Worm gears.
- 3.- Performing calculations in mechanical drives.
- 4.- Learning about the practical assembly of the various possible configurations of the mechanical drives, in addition to learning how to adjust and align them.
- 5.- Understanding the technical diagrams and becoming familiar with them.

DIMENSIONS AND WEIGHTS

MCDA:

- Dimensions of the assembled frame: 1100 x 550 x 500 mm approx. (43.30 x 21.65 x 19.68 inches approx.)
- Carrying case dimensions: 150 x 445 x 310 mm approx. (5.90 x 17.52 x 12.20 inches approx.)
- Toolkit: 311 x 168 x 130 mm approx. (12.24 x 6.61 x 5.11 inches approx.)
- Weight: 70 Kg approx. (154.32 pounds approx.)

MCD/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.

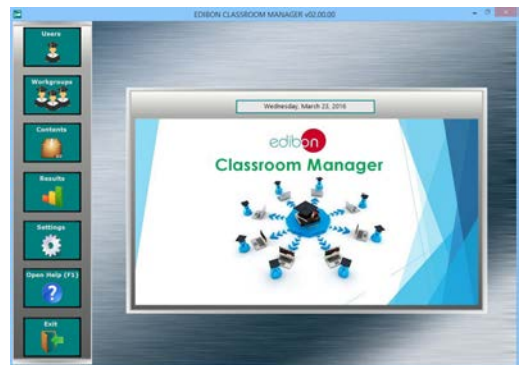
Instructor Software

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

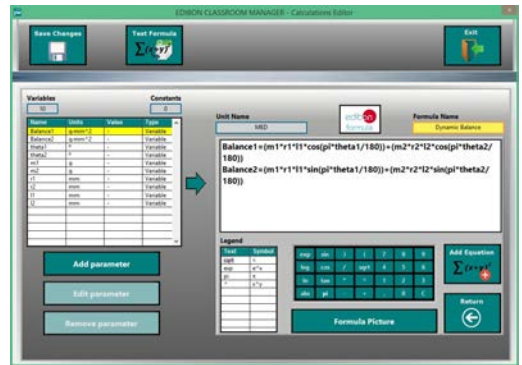
ECM-SOF is the application that allows the Instructor to register students, manage and assign tasks for workgroups, create own content to carry out Practical Exercises, choose one of the evaluation methods to check the Student knowledge and monitor the progression related to the planned tasks for individual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

Innovative features:

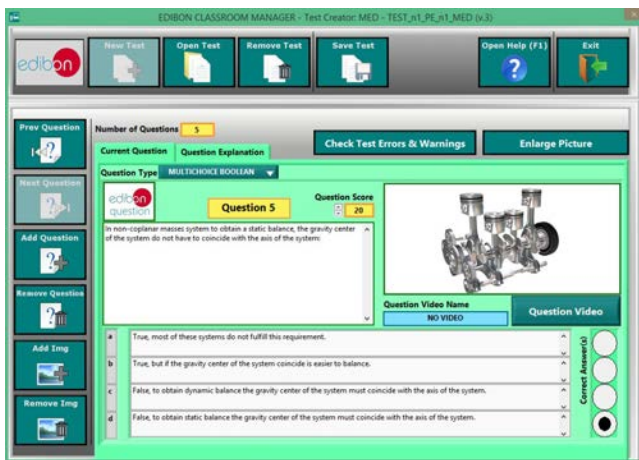
- User Data Base Management.
- Administration and assignment of Workgroup, Task and Training sessions.
- Creation and Integration of Practical Exercises and Multimedia Resources.
- Custom Design of Evaluation Methods.
- Creation and assignment of Formulas & Equations.
- Equation System Solver Engine.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

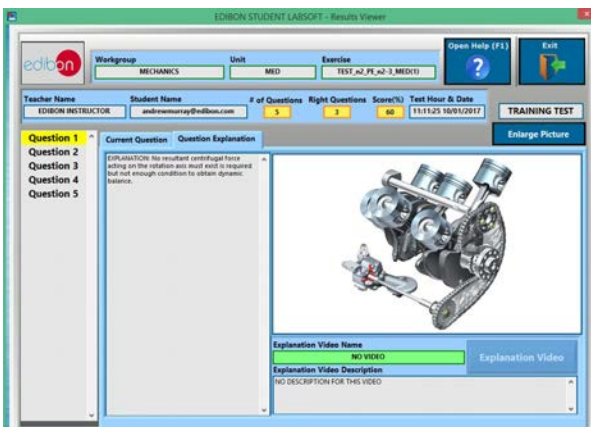
www.edibon.com/en/files/expansion/ICAI/catalog



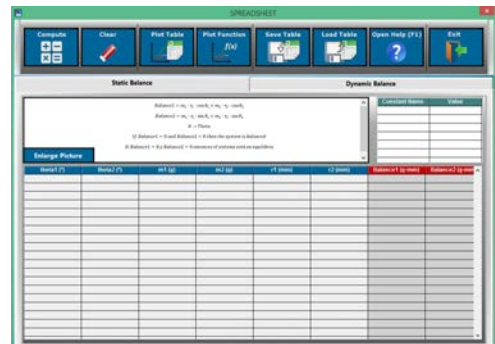
ESL-SOF. EDIBON Student LabSoft (Student Software)
Application Main Screen



EPE. EDIBON Practical Exercise Program Package Main Screen



ERS. EDIBON Results & Statistics Program Package - Question Explanation



ECAL. EDIBON Calculations Program Package Main Screen

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



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REPRESENTATIVE:

