



INTRODUCTION

A combined gear is a two or more stage gear with different types of gears.

Combined gears play an important role in all kinds of industrial machines. Some of the most noteworthy applications are, for example, in elevators, car industry, transport and automatic doors and escalators systems.

The Combined Gear Assembly Unit, "CGA", has been designed to study the practical assembly and operation of an industrial gear with easy devices and tools.

GENERAL DESCRIPTION

The Combined Gear Assembly Unit, "CGA", allows the study of a two-stage gear. This gear consists of a spur gear (helical cut gears) followed by a worm gear (worm wheel transmission with cylindrical worm), manually assembled. The complete unit includes the driving and driven shafts, spur gear transmission, worm gear transmission and typical elements of a reduction mechanism such as locking rings, oil seals and bearings. The possibility of manual assembly and disassembly of the equipment has been proven. It is an ideal equipment for individual or team practical classes.

The supply includes a tool kit, spare parts for the elements most susceptible to wear, a box for storing and organizing the smallest parts and a suitable hydraulic oil to facilitate assembly and operation of the equipment.

The teaching material provides the necessary theoretical and technical information to:

1. Understand the basis of the equipment's operation.
2. Be able to assemble and disassemble the unit correctly. The teaching material supplied includes pictures to illustrate the instructions in the manual, exploded diagrams and technical drawings with a list of components.

The material is supplied placed and protected in a case for transport.

The Unit to Study the Alignment of Drives, Shafts and Gears, "ADSG" can be used to check the operation of the gear once assembled.



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

Distribution and transport case for all parts.
The "CGA" unit mainly consists of:

Combined gear:

Transmission ratio (i): 44.1.

Max. output torque (M_{max}): 179 Nm a 500 rpm.

Materials:

Case: cast iron.

Shafts: steel.

Gears: alloyed case-hardened steel.

Retainers: nitrile – NBR.

Dimension for driving and driven shafts:

Driving shaft: Ø140 x 11.

Driven shaft: Ø18.

Spur gear stage:

Transmission ratio (i): 2.94.

Pinion:

Number of teeth (z): 18.

Module: 1 m.

Gear wheel:

Number of teeth (z): 53.

Module: 1 m.

Worm gear stage:

Transmission ratio (i): 15.

Worm screw:

Number of teeth (z): 4.

Number of thread starts (e): 2.

Module: 2 m.

Worm wheel:

Number of teeth (z): 30.

Module: 2 m.

Assembly and disassembly tools set:

Tool case with different compartments.

Transparent storage box for small parts.

Nylon hammer.

Lock ring extractor.

Torx screwdrivers.

Fixed keys.

Plans: including an exploded drawing and list of components, and the dimensions of the equipment.

Spare parts kit:

Seeger lock rings.

Oil seals.

O-rings.

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

Recommended elements (Not included):

- AD SG. Unit to Study the Alignment of Drives, Shafts and Gears.



CGA detail



Function check on the AD SG unit

EXERCISES AND PRACTICAL POSSIBILITIES

- | | |
|--|---|
| <ul style="list-style-type: none">1.- Study of the operation of a combined gear.2.- Analysis of the structure of a combined gear.3.- Study and analysis of the functions and construction characteristics of the components and assemblies.4.- Understanding of technical drawings and plans.5.- Gauging and dimensioning components exercises.6.- Study and analysis of assembly aids.7.- Study and performance of assemblies and complete units. | <ul style="list-style-type: none">8.- Study and determination of the work schedule, mainly the representation and planning of the assembly development.9.- Study and analysis of faults and damages.10.-Repair exercises and maintenance operations for damages and faults.11.-Understanding the criteria required to select the materials. <p>Additional practical possibilities:</p> <ul style="list-style-type: none">12.-Analysis of the operation of the assembled gear ("AD SG" unit is required). |
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DIMENSIONS AND WEIGHTS

CGA:

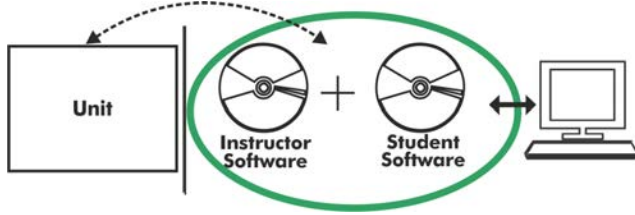
- Dimensions: 223.5 x 115 x 228 mm approx. (tool box) (8.80 x 4.53 x 8.98 inches approx.)

150 x 445 x 310 mm approx. (case) (5.90 x 17.51 x 12.20 inches approx.)

- Weight: 30 kg approx. (66.1 pounds approx.)

RECOMMENDED ELEMENTS (Not included)

- AD SG. Unit to Study the Alignment of Drives, Shafts and Gears.

CGA/ICAI. Interactive Computer Aided Instruction Software:

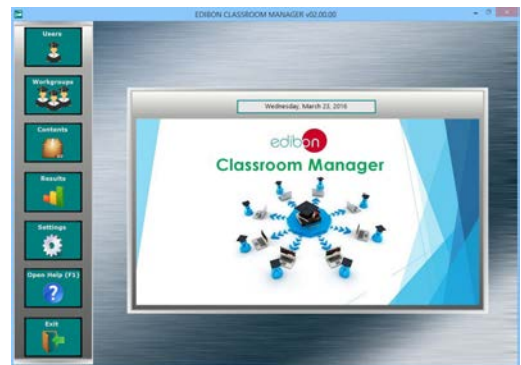
With no physical connection between unit and computer, this complete software package consists of an Instructor Software (EDIBON Classroom Manager -ECM-SOF) totally integrated with the Student Software (EDIBON Student Labsoft -ESL-SOF). Both are interconnected so that the teacher knows at any moment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

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

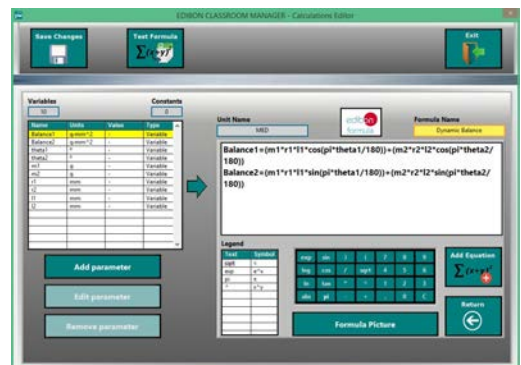
ECM-SOF is the application that allows the Instructor to register students, manage and assign tasks for workgroups, create own content to carry out Practical Exercises, choose one of the evaluation methods to check the Student knowledge and monitor the progression related to the planned tasks for individual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

Innovative features:

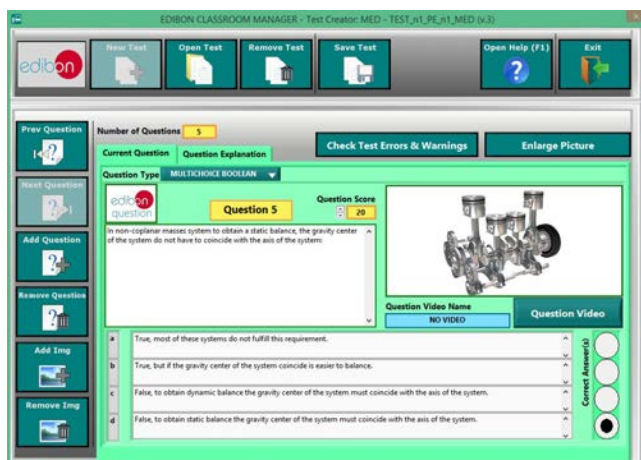
- User Data Base Management.
- Administration and assignment of Workgroup, Task and Training sessions.
- Creation and Integration of Practical Exercises and Multimedia Resources.
- Custom Design of Evaluation Methods.
- Creation and assignment of Formulas & Equations.
- Equation System Solver Engine.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

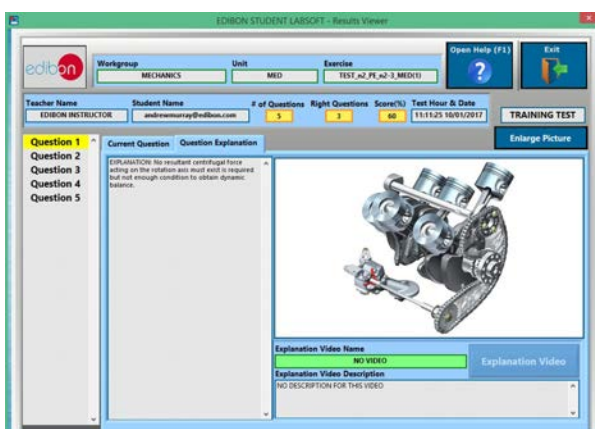
www.edibon.com/en/files/expansion/ICAI/catalog



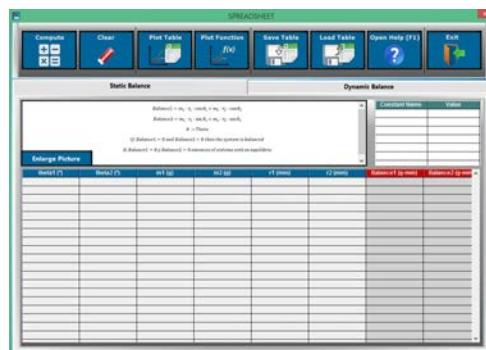
ESL-SOF. EDIBON Student LabSoft (Student Software)
Application Main Screen



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:

