



## 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 for studying a two stage gear. This combined gear consists of a spur gear (helical cut wheels) followed by a worm gear (cylindrical worm and globoid wheel), manually assembled. The complete unit includes the drive housing, driving and driven shafts, spur gear stage, worm pedestal housing and worm gear stage. It is an ideal unit for individual or group practical classes.

The teaching material includes all the detailed technical information required to make the base. The most important part of this teaching material is the large number of pictures, exploded-view drawings, assembly drawings and technical drawings with lists of parts and individual parts, being all of them dimensioned for their manufacture and designed in accordance with the standards. The material and tools required for the assembly are supplied inside a case for protection and transportation purposes.

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)



Certificate and Worlddidac Member

## SPECIFICATIONS

Case made of steel for the components protection and transportation.

Transparent storage box for small parts: different metric screw threads, spare gaskets, bearings, etc.

Combined gear:

Cast iron housing.

Steel shaft.

Alloyed case-hardened steel spur wheels.

Spur gear stage:

Pinion: number of teeth:  $z=24$ , module:  $m=1$ .

Gear wheel:  $z=68$ ,  $m=1$ .

Moment of inertia:  $i=2.83$ .

Alloyed case-hardened steel worm gear:

Worm screw:  $z=3$ .

Worm wheel:  $z=37$ ,  $m=2.578$ .

Moment of inertia:  $i=34.89$ .

Maximum output torque: 212 Nm.

Tool box with separate compartments.

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.- 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.
  - 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.
- Additional practical possibilities:
- 12.-Analysis of the operation of the assembled gear ("ADSG" unit required).

## DIMENSIONS AND WEIGHTS

CGA:

- Dimensions: 311 x 168 x 130 mm approx. (12.24 x 6.61 x 5.11 inches approx.) (tool box)

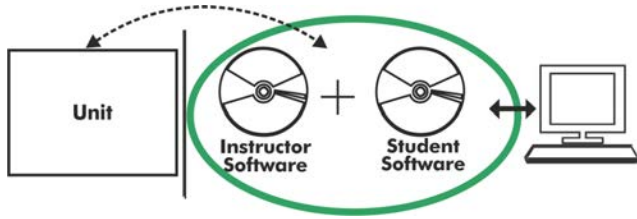
150 x 445 x 310 mm approx. (5.90 x 17.51 x 12.20 inches approx.) (case)

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

## RECOMMENDED ACCESSORIES (Not included)

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

**CGA/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.

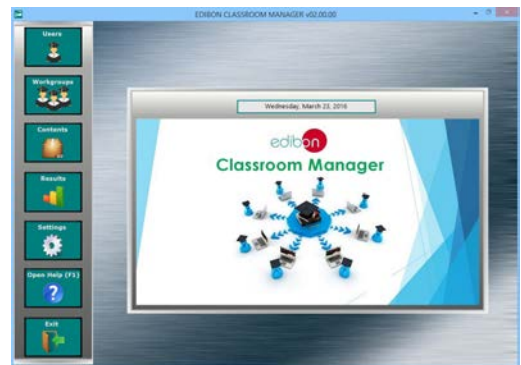
Instructor Software

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

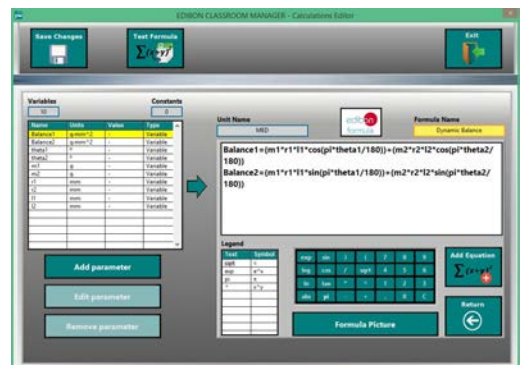
ECM-SOF is the application that allows the Instructor to register students, manage and assign tasks for workgroups, create own content to carry out Practical Exercises, choose one of the evaluation methods to check the Student knowledge and monitor the progression related to the planned tasks for individual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

Innovative features:

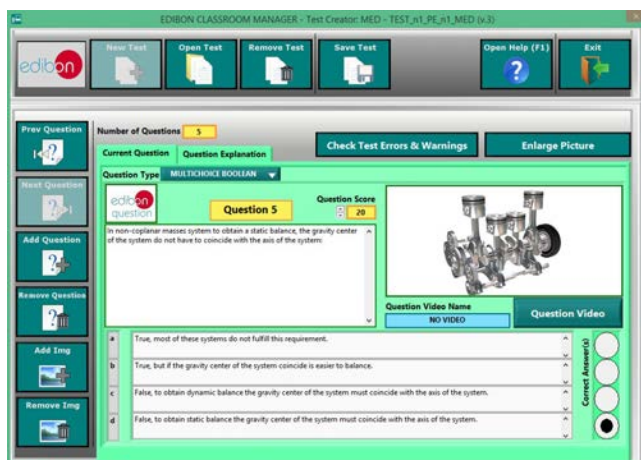
- User Data Base Management.
- Administration and assignment of Workgroup, Task and Training sessions.
- Creation and Integration of Practical Exercises and Multimedia Resources.
- Custom Design of Evaluation Methods.
- Creation and assignment of Formulas & Equations.
- Equation System Solver Engine.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

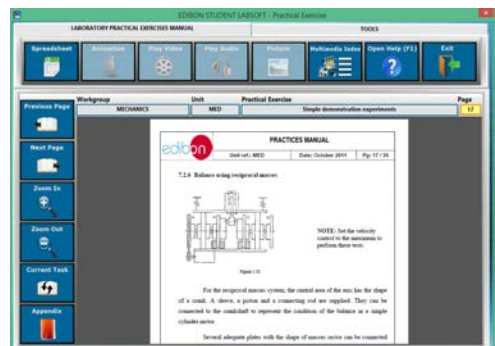
- Student Log-In & Self-Registration.
- Existing Tasks checking & Monitoring.
- Default contents & scheduled tasks available to be used from the first session.
- Practical Exercises accomplishment by following the Manual provided by EDIBON.
- Evaluation Methods to prove your knowledge and progression.
- 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:

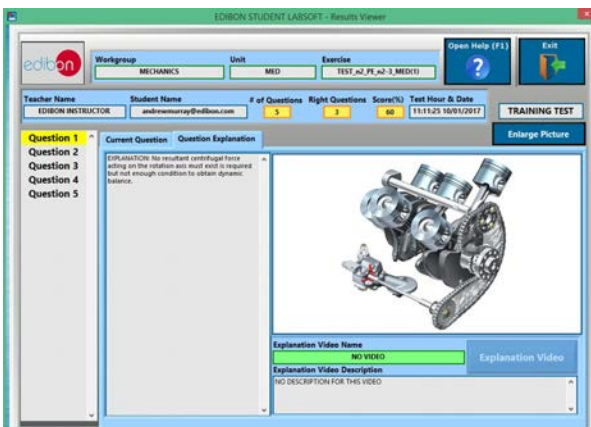
[www.edibon.com/en/files/expansion/ICAI/catalog](http://www.edibon.com/en/files/expansion/ICAI/catalog)



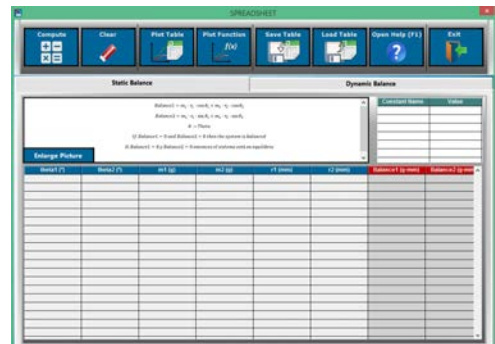
ESL-SOF. EDIBON Student LabSoft (Student Software)  
Application Main Screen



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:

