Unit to Study a Shaft with Journal Bearings Assembly

SJBA

INTRODUCTION

In engineering, a bearing is the part supporting the rotating shaft that conveys the rotating momentum of a machine.

The journal bearing is the simplest type of bearing used in engineering. Its operating principle is based on the sliding ability between two surfaces in contact, (a sleeve and a journal), due to the presence of fluid that acts as a lubricant between both. The buffering effect of this lubricant causes the sliding bearings to operate silently and smoothly, damping both vibrations and shocks such as those produced by connecting rod-handle mechanisms or sprocket gears. This type of bearings is widely used in presses, stamping machines and piston machines because they are insensitive to high shock loads.

The Unit to Study a Shaft with Journal Bearings Assembly, "SJBA", enables the study of practical assembly and disassembly, maintenance and repair tasks of a simple slide bearing, so that the student will know perfectly both the unit operation and all of its components.

GENERAL DESCRIPTION

The Unit to Study a Shaft with Journal Bearings Assembly, "SJBA", consists of two split shaft bearings and one ground steel shaft. The slide bearing consists of two parts, the journal which is the part of the shaft that is in contact with the bearing, and the surrounding sleeve which is the bearing itself.

The study of bearings is intimately linked to the study of the lubricant film that is placed between the moving parts. Bearings are easily assembled thanks to lubrication.

This lubrication can be obtained, for example, by using grease supplied to the bearing through a Stauffer bushing which is screwed to a lubrication channel located in the top cap bearing.

In order to distribute the grease through the entire bearing, the top cap bearing has a flat lubrication groove that is used on its sliding surface. This is smooth enough for the lubricant to be drawn by the shaft as it rotates. The lubricant must also provide tightness to the bearing in order to prevent dirt from entering from the outside.

The typical paste for material testing is used to control the bearing alignment. This type of bearing is limited by the admissible load to be supported in order to form the lubricating film, but when this drawback doesn't occur, they can be used in rotating bodies at high speeds and with low noise.

The bearing clearance can be measured by using a set of calibrated plastic threads.

A case is provided to facilitate transportation and to ensure the protection of components needed.

SPECIFICATIONS

Transporting case.

Shaft bearing:

    Cap bearings according to DIN8221 standard.

    Steel Stauffer bushing.

    Tempered steel shaft: $\varnothing = 25$ mm.

    Cast sleeve.

    Shaft journal for cast coupling: $\varnothing = 16$ mm.

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

EXERCISES AND PRACTICAL POSSIBILITIES

1.- Study of the operation of a simple slide bearing.

2.- Analysis of the structure of a simple slide bearing.

3.- Study and understanding of the sealing components.

4.- Study and analysis of the principles and different types of lubrication.

5.- Study and performance of assembly and disassembly exercises, as well as repair and maintenance.

6.- Reading comprehension of technical drawings and instruction manuals.

Additional practical possibilities:

7.- Study and analysis of the sliding qualities of the slide bearing (requires ADSG).

DIMENSIONS AND WEIGHTS

SJBA:

  - Case dimensions: 150 x 445 x 310 mm approx. (5.90 x 17.52 x 12.20 inches approx.)

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

  - Weight: 40 Kg approx. (88 pounds approx.)

SJBA/ICAI. Interactive Computer Aided Instruction Software System:
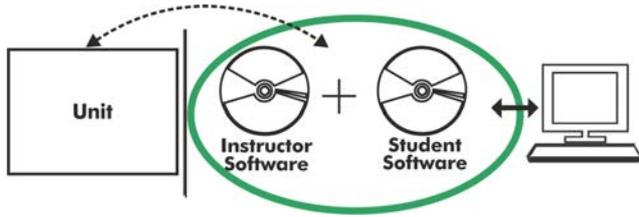
With no physical connection between unit and computer (PC), **this complete software package consists of an Instructor Software (EDIBON Classroom Manager -ECM-SOF) totally integrated with the Student Software (EDIBON Student Labsoft -ESL-SOF).** Both are interconnected so that the teacher knows at any 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
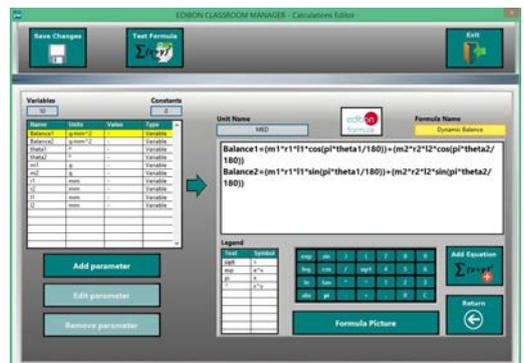
ECAL. EDIBON Calculations Program Package - Formula Editor Screen
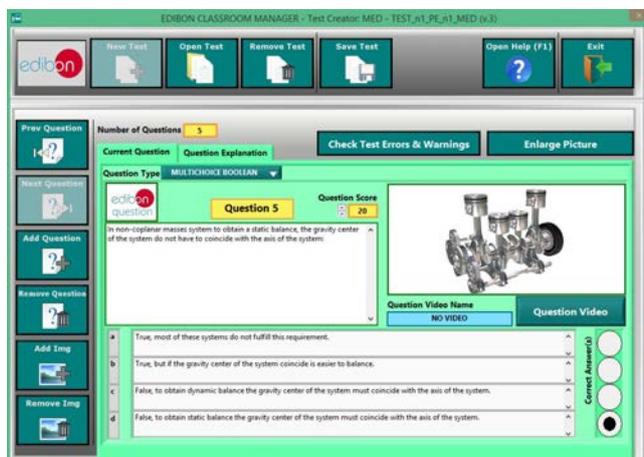
ETTE. EDIBON Training Test & Exam Program Package - Main Screen with Numeric Result Question

ERS. EDIBON Results & Statistics Program Package - Student Scores Histogram

- **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
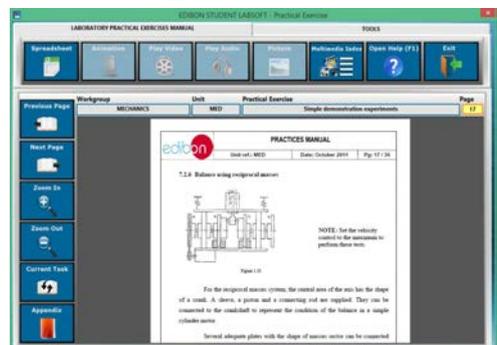
EPE. EDIBON Practical Exercise Program Package Main Screen
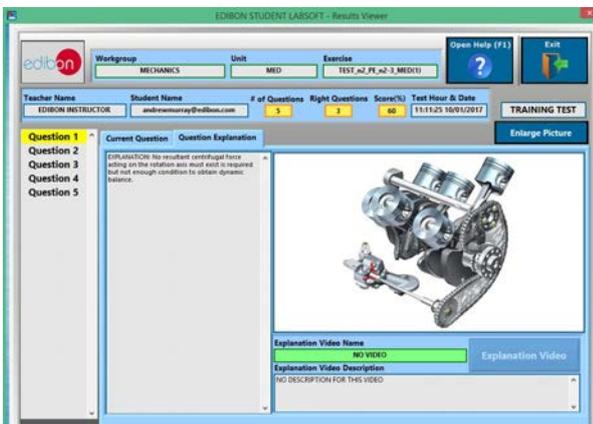
ERS. EDIBON Results & Statistics Program Package - Question Explanation
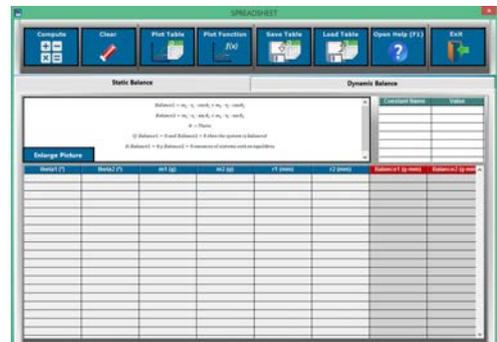
ECAL. EDIBON Calculations Program Package Main Screen

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

INTERNATIONAL

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REPRESENTATIVE: