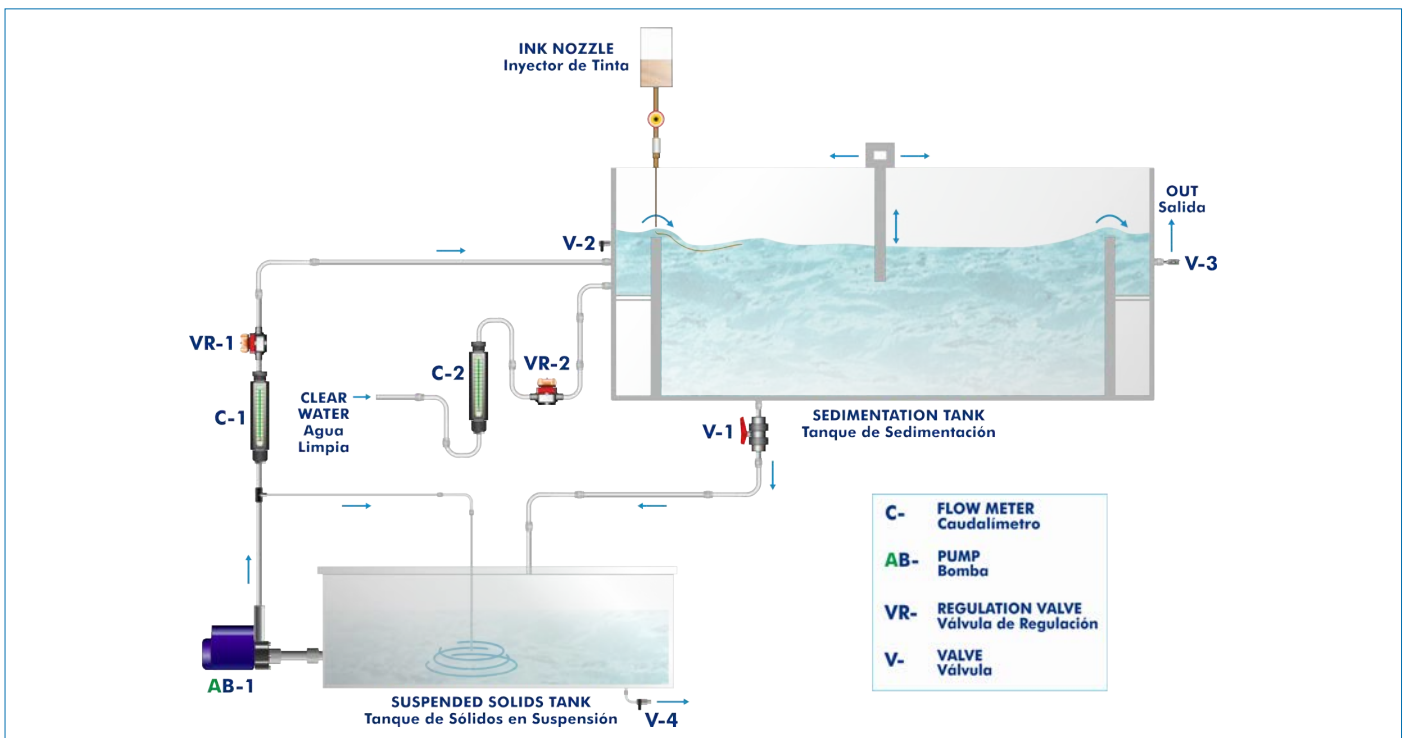




PROCESS DIAGRAM AND UNIT ELEMENTS ALLOCATION



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

INTRODUCTION

Sedimentation is a separation stage of solids suspended in a water volume or current where particles heavier than water settle due to the action of gravity. In the industry, the equipment designed to carry out the sedimentation operations are generally the sedimentation tanks, also known as clarifiers. These types of systems are mounted in stages of primary treatment to eliminate the particles in suspension, such as sands. The use of these tanks is also very effective to remove the colloids formed in chemical stages.

The "PDS" unit is a teaching unit designed by EDIBON to become familiar with the settling of discrete or coagulated particles inside a tank. It will also allow the study of the hydraulic characteristics of a rectangular sedimentation tank working in continuous mode.

The equipment is supplied with the required material to study the tank efficiency under different circumstances, modifying the relevant variables of the process, such as flow rates and concentrations. It also includes an ink injection system to trace the flow direction through the sedimentation tank and locate dead spaces and/or flow short-circuits.

GENERAL DESCRIPTION

The Sedimentation Tank, "PDS", is a teaching unit, designed by EDIBON, to demonstrate the sedimentation process and to familiarize with the settling principle of discrete particles settling into a tank. It will also allow to study the hydraulic characteristics of a rectangular sedimentation tank which works in continuous.

As it is a laboratory unit, it allows to obtain valid conclusions about its operation and to apply them to the operation of a real scale unit.

The great advantage of the "PDS" unit is that its sedimentation tank is made of transparent material. So, this allows the student to understand the sedimentation principles. This fact allows to carry out several practices, as well as to make easier the comprehension of the different variables influence on the process.

The practical exercises start preparing a suspension in the suspension tank, placed at the unit lower part. A pump drives the suspension from the suspension tank to the sedimentation tank with a flow selected by using a regulation valve and measured by a flowmeter. This suspension is mixed with clean water at the sedimentation tank inlet. The clean water flow is controlled by a flowmeter by using its regulation valve.

Once the fluids are mixed, the current is passed into the sedimentation tank through the inlet weir. Here, the solids in suspension settle at the bottom.

The clarified water outlet is produced through the outlet weir at the tank outlet section. In this tank outlet section there is a flexible pipe on which the outlet clarified water quality can be analyzed.

The unit has a dye injection and tracer system, which allows to study the fluid current lines into the sedimentation tank.

It also has two adjustable in height baffle plates, which can be placed at any point of the tank length, what makes easier for the student the possibility of changing the flow lines direction and its study.

As support to carry out the practical exercises, the following accessories are supplied: two Imhoff cones and a graduated test tube of 1 l.

SPECIFICATIONS

Anodized aluminum frame and panels made of painted steel.

The unit includes wheels to facilitate its mobility.

Main metallic elements made of stainless steel.

Diagram in the front panel with distribution of the elements similar to the real one.

Sedimentation tank, made of transparent material; length: 1000 mm, width: 400 mm, height: 250 mm.

Dye injection and tracer system, which allows to study the fluid current lines into the sedimentation tank.

Two baffle plates, adjustable in height, what makes easier for the student the possibility of changing the flow lines direction and its study.

Suspension installation, consists of:

Suspension tank of 140 l.

Constant stirring in the suspension tank by a flow bypass impelled by the pump.

Centrifugal pump, flow up to 80 l/min. Maximum height: 20 m.

Flow regulation valve.

Flowmeter, range: 0.2 - 2 l/min.

Clean water installation, consists of:

Flow regulation valve.

Flowmeter, range: 1.5 - 10 l/min.

Accessories included for the samples analysis:

Two Imhoff cones of 1000 ml, to measure the solids concentrations.

Graduated test tube of 1 l.

Cables and Accessories, for normal operation.

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



PDS detail

EXERCISES AND PRACTICAL POSSIBILITIES

- 1.- Main elements of a system designed to separate solids in a sedimentation tank.
 - 2.- Influence of the concentration of suspended solids on the separation process.
 - 3.- Influence of the supply flow on the separation process.
 - 4.- Influence of the position of baffle plates on the separation process.
 - 5.- Determination of the surface hydraulic load for different concentration of solids in suspension.
 - 6.- Research about the flow conditions, determination of flow short-circuits and dead spaces using an ink tracer.
- Additional practical possibilities:
- 7.- Comparison of real flow regimes with idealised flow models.

REQUIRED SERVICES

- Electrical supply: single-phase, 220V/50 Hz or 110V/60 Hz.
- Water supply and drain.

DIMENSIONS AND WEIGHTS

- PDS:
- Dimensions: 1300 x 1400 x 700 mm approx.
(51.18 x 55.11 x 27.55 inches approx.)
 - Weight: 150 Kg approx.
(330 pounds approx.)

RECOMMENDED ACCESSORIES (Not included)

- Scales.

REQUIRED CONSUMABLES (Not included)

- Calcium carbonate (CaCO_3).
- Ink.

AVAILABLE VERSIONS

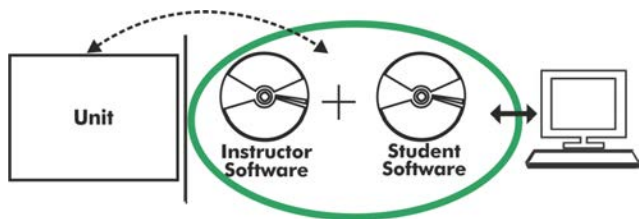
- PDS. Sedimentacion Tank.

Offered in this catalogue:

- PDSC. Computer Controlled Sedimentacion Tank.

Offered in other catalogue:

PDS/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:

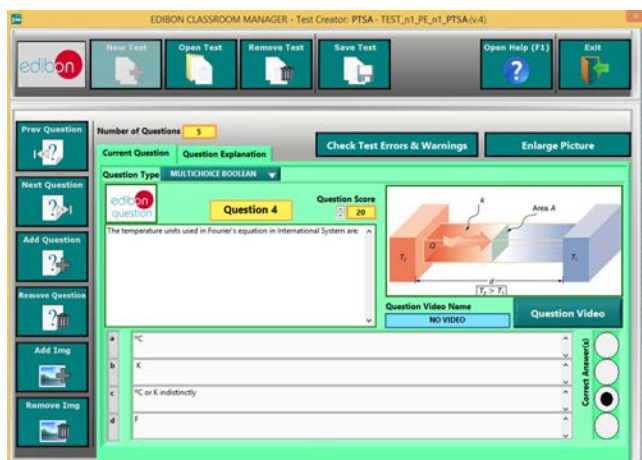
- User Data Base Management.
- Administration and assignment of Workgroup, Task and Training sessions.
- Creation and Integration of Practical Exercises and Multimedia Resources.
- Custom Design of Evaluation Methods.
- Creation and assignment of Formulas & Equations.
- Equation System Solver Engine.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



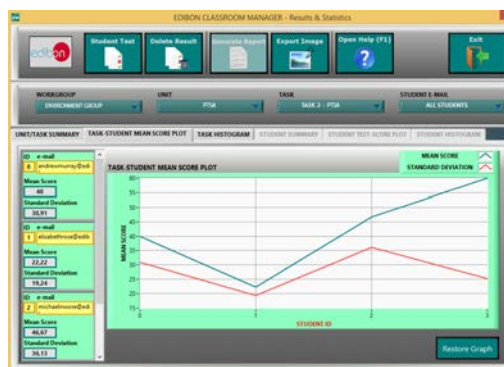
ECM-SOF. EDIBON Classroom Manager (Instructor Software) Application Main Screen



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:

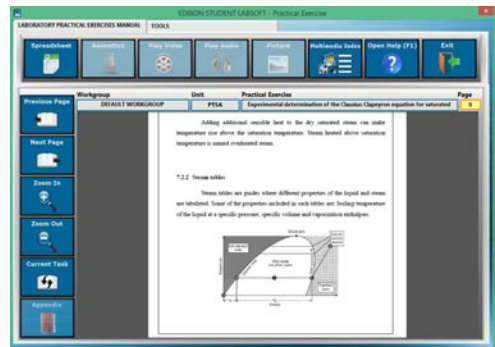
- Student Log-In & Self-Registration.
- Existing Tasks checking & Monitoring.
- Default contents & scheduled tasks available to be used from the first session.
- Practical Exercises accomplishment by following the Manual provided by EDIBON.
- Evaluation Methods to prove your knowledge and progression.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

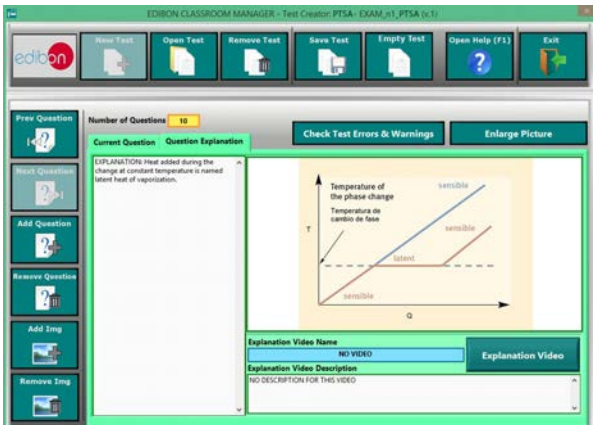
www.edibon.com/en/files/expansion/ICAI/catalog



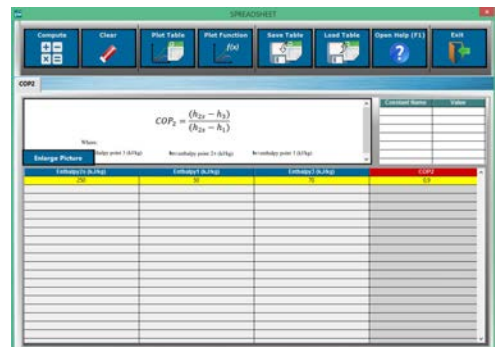
ESL-SOF. EDIBON Student LabSoft (Student Software)
Application Main Screen



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:

