

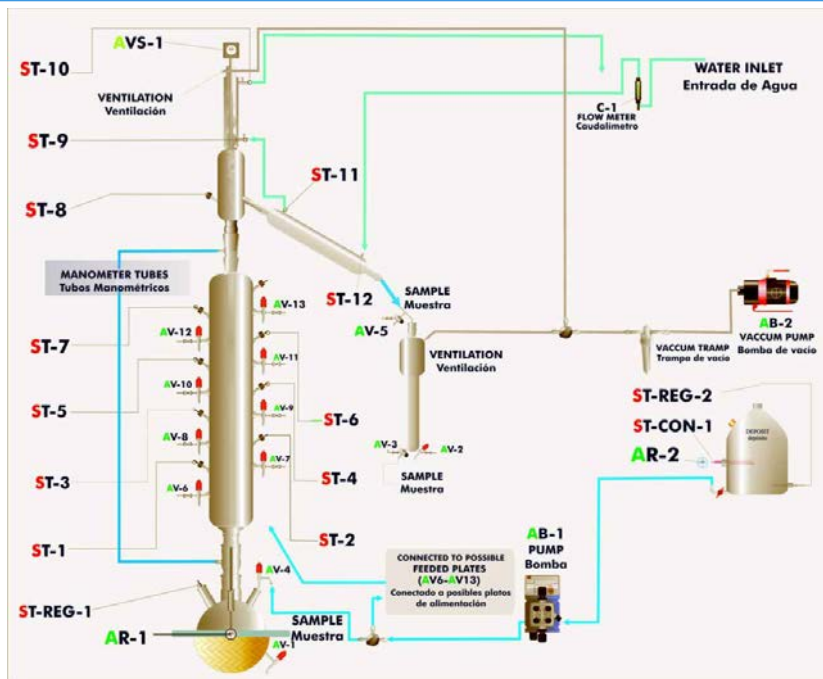
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Electronic Console

PROCESS DIAGRAM AND ELEMENTS ALLOCATION



Note:
 ST= Temperature sensor.
 AR= Heating resistance.
 AVS= Solenoid valve.
 AV= Valve.



ISO 9000: Quality Management
 (for Design, Manufacturing,
 Commercialization and After-sales service)



European Union Certificate
 (total safety)



Certificates ISO 14000 and
 ECO-Management and Audit Scheme
 (environmental management)



Worlddidac Quality Charter
 Certificate
 (Worlddidac Member)

DESCRIPTION

EDIBON's distillation unit is one of the most powerful laboratory tools, for the study of the variables that affect the distillation process. The student can investigate the principles that rule the material and energy transference, as well as determine optima operation point to carry out a big quantity of separations.

This unit is formed by a boiler, on which two types of columns can be adapted (plate columns and Raschig columns), a reflux system, a tank for distillation, a vacuum pump and a feeding pump (for continuous feeding).

The steam reaching the head of the column is sent to a total condenser. The cooling water flow going through the condenser can be adjusted and is indicated in a flow meter. Distillation can be carried out at low pressures with the help of an adjustable vacuum pump. The load loss in the column can be measured with a pressure meter.

The column can work both continuously and discontinuously.

For proceeding to continuous feeding, a pump that can inject the substance directly into the boiler or in any of the plates is available.

The temperatures of the system are measured through sensors placed in strategic positions.

SPECIFICATIONS

Anodized aluminium structure and panels in painted steel (epoxy paint).

Main metallic elements in stainless steel.

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

Sieve Plates Column with 8 plates with temperature taking (sensor) and sample in every plate. 50 mm. internal diameter and 1000 mm. length. Vacuumed, silver-plated and double transparent band for vision.

The column can work both continuously and discontinuously.

Column head with temperature taking, conical output for distilled product and ball refrigerator.

Column head with a valve for the steam distribution. The valve operates in an electromagnetic way.

2l. Boiler (with sample outputs) with heating mantle, with adjustable power (max. power: 500 watt.).

2l. Distillation collector of graduated glass.

Liebig-west coolant.

Feeding system in continuous with preheating (heating resistance) at the specified temperature and a pump that provides a maximum flow of 3.81 l/min.

Feed vessel, 10 l. capacity.

Adjustable vacuum pump that allows to decrease the atmospheric pressure to 0.8 bar.

Temperature measurement system. 12 Temperature sensors ("J" type).

Flow meter.

Manometer tubes.

Working temperature : ambient temperature up to 125°C.

Solenoid valve.

Electronic Console:

Metallic box.

Temperature sensors connections.

Digital display for temperature sensors.

Selector for temperature sensors.

Heating resistance (AR-1) controller.

Pump switches.

Solenoid valve timer controller. (Solenoid valve reflux time control).

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.

Optional Columns (not included in the standard supply):

- CAR1. Raschig Rings Column.
- C8P1. 8 Plates Type Column (1 Temperature point).
- C10P10. 10 Plates Type Column (10 Temperature points).
- C14P14. 14 Plates Type Column (14 Temperature points).
- C20P20. 20 Plates Type Column (20 Temperature points).

EXERCISES AND PRACTICAL POSSIBILITIES

Some Practical Possibilities of the Unit:

- 1.- Preparation of solutions.
- 2.- Analytic valuation techniques.
- 3.- Filling of the column.
- 4.- Batch operation. Continuous operation.
- 5.- Obtaining the McCabe-Thiele diagram. Without reflux
- 6.- Obtaining the number of plates. Without reflux.
- 7.- Efficiency calculations. Without reflux.
- 8.- Variation of the composition of the distilled product: constant reflux ratio.
- 9.- Constant composition of the distilled product: variation of reflux ratio.
- 10.- Constant composition of the distilled product: constant reflux ratio.
- 11.- Continuous feeding of the column.
- 12.- Mass and energy balances across the system.
- 13.- Plates fluid dynamics studies, including load loss and column flooding.
- 14.- Study of the feed temperature effect on the continuous processes.
- 15.- Calculation of the theoretical number of floors in the plates columns, and the equivalent height of the theoretical floor (HEPT) in the Raschig rings columns.
- 16.- Pursuit of the temperatures in all plates in the column (Plates columns).
- 17.- Study of the rectification efficiency at different pressures.
- 18.- Effect of feed pre-heat.
- 19.- Effect of feed position.
- 20.- Demonstration of azeotropic distillation.
- 21.- Studies of heating interchange in glass refrigerators.

REQUIRED SERVICES

- Electrical supply: 220 V./50Hz. or 110V./60Hz.
- Water supply.

RECOMMENDED REAGENTS

- Water/Methanol.
- Heptane/Methylcyclohexane.
- P-Xylene/Methylcyclohexane.

DIMENSIONS & WEIGHTS

UDCB:

Unit: -Dimensions: 900 x 600 x 2800 mm. approx.
-Weight : 200 Kg. approx.

Electronic Console : -Dimensions: 490 x 450 x 470 mm. approx.

-Weight: 20 Kg. approx.

OPTIONAL COLUMNS

- CAR1. Raschig Rings Column.
- C8P1. 8 Plates Type Column (1 Temperature point).
- C10P10. 10 Plates Type Column (10 Temperature points).
- C14P14. 14 Plates Type Column (14 Temperature points).
- C20P20. 20 Plates Type Column (20 Temperature points).

AVAILABLE VERSIONS

Offered in this catalogue:

-UDCB. **Continuous Distillation Unit.**

Offered in other catalogues:

-UDCC. **Computer Controlled Continuous Distillation Unit.**

-UDDC. **Computer Controlled Batch Distillation Unit.**

-UDDB. **Batch Distillation Unit.**

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



C/ Del Agua, 14. Polígono Industrial San José de Valderas.
28918 LEGANÉS. (Madrid). SPAIN.
Phone: 34-91-6199363 FAX: 34-91-6198647
E-mail: edibon@edibon.com WEB site: www.edibon.com

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