

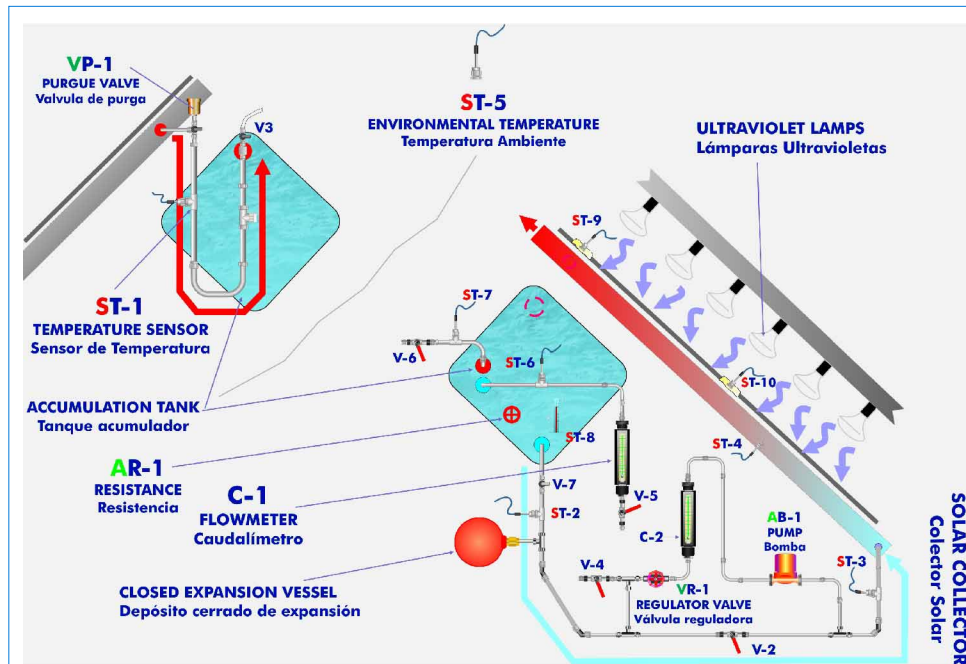
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Products
Products range
Units
5.-Energy



Electronic Console

PROCESS DIAGRAM AND ELEMENTS ALLOCATION



- VP-1: Main purge valve-primary circuit.
- VR-1: Regulation valve-primary circuit.
- V2: Valve in free circulation circuit-primary circuit.
- V3: Second purge valve-primary circuit.
- V4: Valve to fill the water closed circuit-primary circuit.
- V5: Valve to Open/Close the cold water inlet-secondary circuit.
- V6: Valve to Open/Close the hot water outlet-secondary circuit.
- V7: Third purge valve.
- C1: Flowmeter in primary circuit.
- C2: Flowmeter in secondary circuit.
- ST1 to ST10: Temperature sensors.



ISO 9001:2000
Certificate of Approval



European Union Certificate



Certificates ISO 14001: 2004 and
ECO-Management and Audit Scheme
(environmental management)



Worlddidac Quality Charter
Certificate
Worlddidac Member

DESCRIPTION

The unit is a system that transforms solar energy into calorific energy.

This unit uses the thermosiphon system to heat water or the traditional pumping system. In both cases, the absorbed calorific energy is given by the solar radiation simulated, in our case, by a panel with powerful luminous sources.

SPECIFICATIONS

Anodized aluminium structure.

Main metallic elements in steel.

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

Solar panel (Thermal solar collector):

Steel structure.

Pipes (already prepared) to connect the panel and the accumulator. Copper pipes.

Over-pressure security valve.

Manometer, range: 0-4 bar.

Temperature sensors, type "J", range: -40 to 750° C.

Thermal accumulator tank (from 150 to 200 l. approx.):

Vacuum vitrified heater, high efficiency heating and anti-corrosion protections.

It has a supporting heating group, with a regulation electric heating resistance. Range of the resistance: 3000W.

Contact thermostat to control temperature.

Solar simulator:

Aluminum structure regulated in height.

Sixteen solar spectrum lamps of 300 W each one.

Electricity security group, made up by 3 magnetothermics.

Feed wire.

With this unit you can simulate three operating possibilities: with all the lamps on (16), with half of the lamps on (8), and with only one lamp on.

Pumping equipment:

Impulse pump, range: 0-2 l. /min.; 0.6 bar.

3 Flow meters:

One of 0-2 l./min. in the primary circuit (forced circulation, with pump).

One of 4-60 cc/min in the primary circuit (free circulation, without pump).

One of 2-10 l/min in the secondary circuit.

10 Temperature sensors, type "J", range: -40 to 750° C.

Protection curtains.

Electronic Console:

Metallic box.

Connections for temperature sensors.

Digital display for temperature sensors.

Selector for temperature sensors.

Pump switch.

Heating resistance switch.

3 Switches for lamps (one for all the lamps on (16) , other for half of the lamps on (8) and the another for only one lamp on.

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.

EXERCISES AND PRACTICAL POSSIBILITIES

Some Practical Possibilities of the Unit

- 1.-Study of how the thermosiphon works.
- 2.-Study of the lamp illumination profile.
- 3.-Study of the solar collector efficiency.
- 4.-Free circulation: Inclination angle influence on the equipment efficiency.
- 5.-Relationship between the flow and the temperature.
- 6.-Energy balance of the solar collector.
- 7.-Energy balance in the accumulator tank.
- 8.-Experimental efficiency determination.
- 9.-Influence of the incidence angle over the temperature.

REQUIRED SERVICES

- Electrical supply: single-phase, 220V./50 Hz or 110V/60 Hz, minimum power 6000W.
- Water supply: 2 bars.

DIMENSIONS & WEIGHTS

EEST:

Unit:

-Dimensions: 2200 x 1200 x 2005 mm. approx.

-Weight: 290 Kg. approx.

Electronic Console: -Dimensions: 490 x 330 x 310 mm. approx.

-Weight: 10 Kg. approx.

AVAILABLE VERSIONS

Offered in this catalogue:

-EEST. **Thermal Solar Energy Unit.**

Offered in other catalogues:

-EESTC. **Computer Controlled Thermal Solar Energy Unit.**

-MINI-EEST. **Thermal Solar Energy Basic Unit.**

-MINI-EESTC. **Computer Controlled Thermal Solar Energy Basic Unit.**

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



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