

SOLAR PUMPING STATION



Example of achievement

Experimental capabilities

- Identification of the components of a solar pumping system
- Commissioning of the plant
- Measurement of operating parameters
- Study of a pump under load or suction.
- Study of electrical, solar and hydraulic yields
- Study of the influence of the orientation of the panel

Operating principle

The trainer is composed of two solar panels that power storage batteries. The panels are installed on a mobile structure that allows the panels to be placed outside. They can be tilted at different angles to study the influence of the angle on solar production. An inverter will transform the DC voltage of the batteries into an alternating voltage of 230VAC to power the water pump.

A dimmer allows you to adjust the pump's rotation speed and the energy consumed.

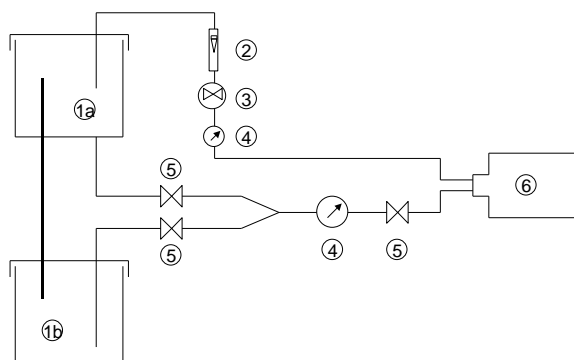
Integrated measuring devices make it possible to analyse the overall operation of the system.

The rugged design of this equipment makes it perfectly suited for use in a school setting.

Its anodized aluminum structure on wheels gives it a very high robustness as well as great flexibility of integration into your premises. The manufacture of this equipment complies with the European Machinery Directive

Illustrations

Technical details



1- Solar panel frames

- mobile structure on wheels with brake
- Two 425W 24V monocrystalline solar panels
- a panel frame rotation system for angle variation (0 to 90°)
- a 25m cable to position the chassis outside

2- Solar power grid including

- 2 batteries gel 12VDC 150Ah
- 1 MPPT 1600VA 12/24VDC converter/regulator
 - Combi converter/charger/MPPT regulator
 - built-in protections
 - Application for monitoring operation and values for use on smartphones or tablets

3- Pumping system including:

- an electrical power supply box with measurement of the power consumed, a pump control dimmer (manual control by potentiometer) and the necessary electrical protections.
 - 0.25KW centrifugal pump with stainless steel body
 - two 75L polyethylene tanks (one loaded and one vacuumed)
 - a network of PVC pipes with translucent pressure with shut-off valves and flow control valve
 - hydraulic measuring instruments: float flow meter and needle pressure gauges (x2).
- The pumping system is installed on an independent structure equipped with 4 directional castors with brakes.

4- Accessories

- The bench is supplied with the following additional accessories:
- a portable solarimeter
 - a portable multimeter

Services required

Documentation

- Water supply: 75L tank filling
- Dimensions: (LxH mm): 3200 x 850 x 1800
- Poids (Kg): 250

Note: In the context of an installation of the equipment by our services, all connections to the networks must be located within 2m of the machine

- Instruction manual
- Pedagogical manual
- Technical documentation
- Practical work
- Electrical diagram
- Hydraulic diagram
- Converter Monitoring App
- CE Certificate of Conformity