



The TH 04.2 equipment simulates a small-scale installation with a Francis turbine or reaction. It is designed for the study and display both the behavior and the characteristics of a Francis turbine.

Among its most notable features include the turbine housing is transparent so you can see how the water flow turns the impeller. In this case, besides the rotation of the impeller, the movement of the fins guide the distributor with which the flow regulation turbine inlet is achieved is also observed.

Regulating valve has water inlet, which allows working with different flows as required.

The braking system by electric brake allows working at different speeds.

The equipment is computerized which means that the inlet pressure to the turbine, the flow, the braking torque, ultimately, all variables are displayed in the integrated team structure computer.

The turbine can be operated completely autonomously, thanks to the team is composed of water tank, pump and all the necessary instruments on a laboratory trolley.

TH 04.2 - AUTONOMOUS ELECTRIC BRAKE FRANCIS TURBINE**LEARNING OBJECTIVES**

- Turbine characteristic curves:
 - Torque - speed (M-n).
 - Brake power - speed (Pe- n).
 - Performance - speed (η - n).
 - Torque - U (M-U).
 - Brake power - U (Pe- U).
 - Performance - U (η - U).
- Iso-performance curves.
- Performance set, turbine-electric generator.
- Studying and obtaining the characteristic curves of a centrifugal pump.
- Obtaining the total return of a central pumping.

TECHNICAL DATA**Brake Type:**

- Braking with electric brake.

Turbine features:

- Type: Francis
- Material impeller: bronze.
- Wheel diameter: 80 mm.
- Turbine Weight: 15 Kg.
- Number of fixed blades 10.
- Number of guide vanes 6 (adjustable from 0 to 100%).
- Power: 100 W
- Rated speed: 4000 rpm

Structure:

- The equipment is supplied on an anodized aluminum frame with tank (130 l) and pump in which the required flow for the turbine is generated.

Electronic components:

- Pressure transducer.
- Differential pressure sensor.
- Direct detection sensor rpm.
- Load cell for measuring the torque.
- Data acquisition card.

Other elements:

- Computer software.

REQUIREMENTS

- Power supply: 230V / 50 Hz.

NOTE

The image shown is indicative.