

OPERATING PRINCIPLE OF A FRANCIS TURBINE



Experimental capabilities

- Identification of the components of a hydraulic system of the Francis turbine
- Measures of all physical parameters of the turbine: water pressure, water flow, rotational speed, torque generated
- Plotting of curves relative to turbo machines: torques, hydraulic power, mechanical power, yield, speed depending on the rotational speed for different values of the pressure and of winnowing
- Iso-Yield on flow rate graph depending on the rotational speed.
- Visualization of fluid movements on the gate operating ring and on the discharge diffuser
-

DIDATEC– Zone d'activité du parc – 42490 FRAISSES- FRANCE
Tél. +33(0)4.77.10.10.10 – Fax+33(0)4.77.61.56.49 – www.didatec-technologie.com
email : service_commercial@didatec-technologie.com

Reproduction interdite / copy prohibited– Copyright DIDATEC avr.-16- page 1

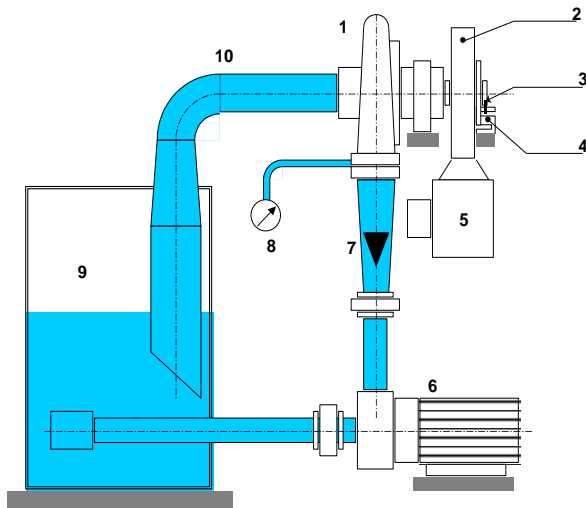
Dans le cadre de l'amélioration permanente de nos produits, ce descriptif technique est susceptible d'être modifié sans préavis
As part of the continuous improvement of our products, this technical specification may be modified without previous notifying

Operating principle

The TVF 010 bench allows the study of a hydraulic turbine of Francis type. A tarp simulates the water reserve and a pump simulates the height of the fall. The user will adjust the different power supply parameters of the turbine (pressure, flow rate and opening the profile blades of wing of aircraft in the distributor). It will then use the electromagnetic brake so as to create a load on the shaft of the turbine. The goal is to vary the rotational speed and to be able to raise the different parameters according to this latter. Torque measurement uses a force sensor connected directly to a digital display. The bench is fully instrumented to characterize the system. The robust design of this equipment makes it perfectly suited for school use.

Its anodized aluminum structure on wheels makes it very robust as well as great flexibility of integration into your premises. The manufacture of this equipment meets European machine directive

Illustrations



Technical details

- 1. Action turbine of type Francis**
Stainless steel
Maximum yield 30%
Maximum speed of 3000rev / min
- 2. Electromagnetic brake**
- 3. Tachometer**
Inductive sensor NPN on rotating shaft
- 4. Torque sensor**
Force sensor 25 Kg
- 5. Fan**
Heat dissipation of the brake
- 6. Centrifugal pump**
Flow rate of 33 m³/h
Power 4 Kw
Speed 2900 rev / min
- 7. Variable Area Flowmeter**
Range from 0 to 33 m³ / h
- 8. Power pressure manometer**
Range 0 to 4 bars
- 9. Polypropylene tank**
Capacity of 210 L
- 10. Suction tube**
Creation of a depression at turbine output.

Services required

- Power Supply: 400 VAC - 50 Hz - 20 A
- Electrical supply Type: 1-Phase + Neutral + Earth
- Water supply: filling tank
- Water capacity: 210 L
- Dimensions: (LxWxH mm): 1460 x 700 x 1850
- weight (Kg): 190

Documentation

- User's manual
- Pedagogical manual
- Technical documentation of the components
- Lab exercises
- Certificate of conformity CE

Note : if the equipment installation is operated by our staff, all supplies and exhaust connections required must stand at less than 2m from the machine