SCIENTICO INDIA
Manufacturer & Exporter · Ambala, Haryana, India

PRODUCT DATA SHEET
Catalogue reference for product evaluation

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Multi Turbine Test Rig | FluidoSurge-X 314

Category: Fluid Mechanics · **Country of Origin:** India

Product Overview

A CE-certified turbine test rig for performance characteristic studies, efficiency curves, and energy conversion analysis, manufactured by Scientico India to ISO 9001:2015 standards. Supplied with calibration certificate, operation manual, and complete export documentation. Designed for Fluid Mechanics laboratories in engineering colleges and technical institutions.

View this product online: https://scienticoindia.com/product/multi-turbine-test-rig-fluidosurge-x-314/



Request a model-specific quotation
Include quantity and delivery country.

Technical Specifications

Parameter	Specification
Apparatus Type	Multi turbine performance test rig
Turbine Types	Pelton, Francis, Kaplan
Pump Power	2.2 kW
Pump Speed Control	Inverter controlled, 0 to ~3000 rpm
Water Circuit	Closed, recirculating
Frame	Welded steel base frame
Instrumentation	Control and measurement console
Power Measurement	Power transducer on pump motor
Speed Measurement	Speed sensor on DC generator shaft
Torque Measurement	Load cell with torque arm
Electrical Load	Resistive lamps
Pressure Measurement	Analogue manometers at turbine inlet and outlet

Pelton Turbine

Parameter	Specification
Number of Buckets	16 to 18

Parameter	Specification
Nozzle Area	Variable, up to 162 mm²
Runner Radius to Jet Impact	70 to 80 mm
Maximum Speed	~1800 rpm
Speed at Maximum Efficiency	~1200 rpm

Francis Turbine

Parameter	Specification
Impeller Blades	10
Impeller Diameter	50 mm
Impeller Inlet Height	14.5 mm
Impeller Outlet Diameter	50 mm
Guide Vanes	6 adjustable

Kaplan Turbine

Parameter	Specification
Inlet Height	14.5 mm
Outlet Diameter	88 mm
Interchangeable Rotors	3 units
Rotor Blade Angles	10°, 20°, 30°
Rotor Diameter	87 mm
Guide Vanes	6 equi-spaced
Guide Vane Diameter	153.4 mm

Key Features

Key Features

- Single test rig for Pelton, Francis, and Kaplan turbines
- Self-contained, closed water circuit with recirculation
- Variable-speed pump for head and flow variation
- Dynamometer-based torque and speed measurement
- Electrical power generation and load control using DC generator
- Transparent turbine sections for visual observation
- Suitable for comparative turbine performance studies

Applications

- Fluid mechanics and hydraulic machinery laboratories
- Study of impulse and reaction turbines
- Determination of turbine efficiency and specific speed
- Comparative analysis of turbine characteristics
- Teaching and training in renewable and hydraulic energy systems

Construction & Design Details

The test rig is built on a rigid welded steel base frame supporting the pump, turbine assemblies, and water reservoir. Turbines are mounted individually with dedicated casings, some of which are transparent for flow observation. The control console houses electrical meters, power transducer, inverter speed control, and instrumentation. A DC generator directly coupled to the turbine shaft enables torque and speed measurement through a load cell and resistive electrical loads.

Experiments

- Measurement of mechanical power output and hydraulic power input
- Determination of turbine efficiency
- Study of specific speed of Pelton, Francis, and Kaplan turbines
- Effect of head and flow variation on turbine performance
- Comparative performance analysis of different turbine types

Data Acquisition Software (Optional)

Optional DAQ software developed in the NITM LabVIEW™ environment supports data acquisition, processing, and reporting on Windows systems. The software enables graphical visualization of turbine characteristics, calculation of efficiencies, and generation of comprehensive CSV reports containing measured and calculated data.

Requirements

- Electrical supply: 415 VAC, 50 Hz, three-phase
- Laboratory tap water connection for top-up
- Drainage point

Standard Scope of Delivery

- 1 experimental module
- 1 Pelton turbine
- 1 Francis turbine
- 1 Kaplan turbine with three interchangeable rotors
- 6 resistive load lamps
- 1 spring balance, 10 kg capacity, least count 50 g
- 1 instruction manual

Export & Supply Capability

SCIENTICO manufactures the Multi Turbine Test Rig FluidoSurge-X 314 for engineering colleges, technical universities, and training laboratories. The system is suitable for domestic and international supply. Export packing, documentation, and electrical configuration are provided as per destination requirements.

Ordering & Delivery

- Send the product name, quantity, delivery country and destination with your enquiry.
- Production schedule, freight, payment terms and export documents are confirmed in the written quotation.

Frequently Asked Questions

Q1. Which turbine types are included in FluidoSurge-X 314?
Pelton, Francis, and Kaplan turbines are included as interchangeable modules.

Q2. How is turbine power measured?
Power is determined using torque measurement via a load cell and rotational speed sensing on the DC generator shaft.

Q3. Can pump speed be varied during experiments?
Yes. Pump speed is controlled using an inverter with a speed dial.

Q4. Is the water circuit open or closed?
The system operates on a closed, recirculating water circuit.

Q5. Is digital data acquisition available?

Yes. Optional DAQ hardware and software are available for advanced data logging and analysis.

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