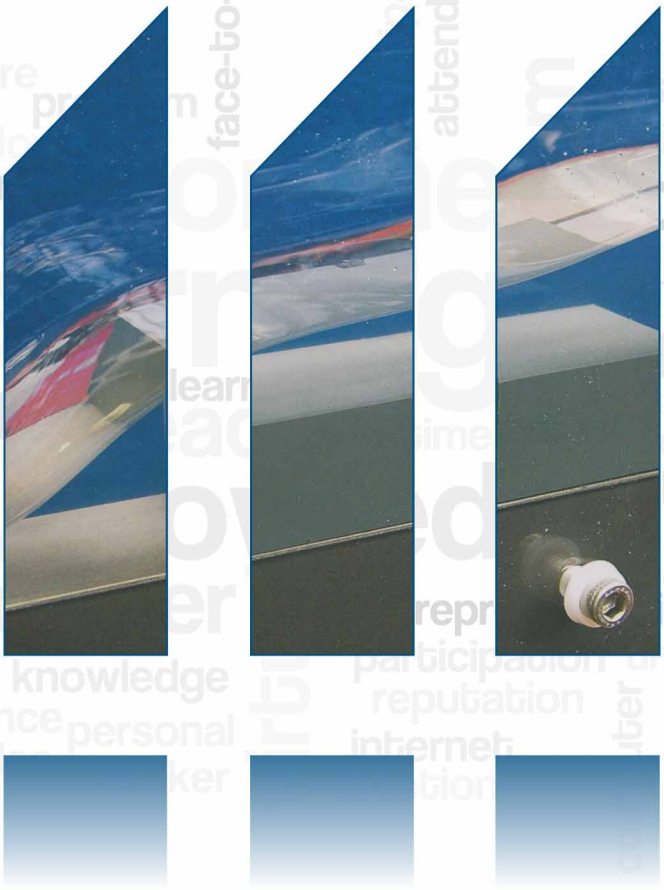

Fluid Mechanics

infoWERK
medien & technik

H18 Francis Turbine

Shows how a Francis turbine works and tests its performance

- A simple-to-use, laboratory-scale unit which tests the performance and efficiency of a Francis turbine
- Ideal for classroom demonstrations and student experiments
- Mounts onto TecQuipment's Volumetric Hydraulic Bench (H1D) for flow measurement and easy installation
- Includes band brake to measure turbine torque
- Fully adjustable guide vanes with position indicator
- Includes pressure gauge to measure inlet pressure
- Transparent front so students can see what is happening

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An ISO 9001 certified company

TecQuipment

H18 Francis Turbine

Description

The Francis Turbine is a laboratory-scale reaction turbine for use with TecQuipment's Volumetric Hydraulic Bench (H1D, available separately).

The turbine has a sturdy base which sits on the top of the hydraulic bench. The turbine connects to the pumped supply of the hydraulic bench. The bench measures the flow rate. A mechanical gauge measures the inlet pressure to the turbine. Adjustable guide vanes in the turbine alter the flow rate and direction of flow to the impeller (runner) of the turbine. The end of the turbine outlet tube (draft) is in the open-water channel of the hydraulic bench.

Included with the turbine is a weir plate to create a shallow reservoir in the water channel of the bench. This ensures that water covers the end of the draft during tests. A band brake with spring balances measures the torque at the turbine shaft. A stroboscope with speed display (ST1, available separately) or an optical tachometer (OT1, available separately) can measure the speed of the turbine. The stroboscope can also 'freeze' the image of the turbine and water flow to improve students' understanding of the turbine.

Students test the turbine at different flow rates, loads and guide vane settings. They use the flow, torque, pressure and speed measurements to calculate hydraulic power input and mechanical (shaft) power at the turbine. They use these to create performance curves for the turbine.

Standard Features

- Supplied with a comprehensive user guide
- Five-year warranty
- Manufactured in accordance with the latest European Union directives

Shown with TecQuipment's Volumetric Hydraulic Bench (H1D – available separately)

Experiments

- Efficiency of a Francis turbine
- Performance of a Francis turbine at different flow rates
- The effect of different guide vane settings on turbine performance

Essential Base Unit

- Volumetric Hydraulic Bench (H1D)

Essential Ancillary

- Optical Tachometer (OT1)

Recommended Ancillary

- Stroboscope (ST1)

Essential Services

Water supply (from the hydraulic bench):
60 Litres/minute at 1.5 m head

Operating Conditions

Operating environment:
Laboratory

Storage temperature range:
–25°C to +55°C (when packed for transport)

Operating temperature range:
+5°C to +40°C

Operating relative humidity range:
80% at temperatures < 31°C decreasing linearly to 50% at 40°C

Sound Levels

Less than 70 dB(A)

Specifications

Nett dimensions and weight (assembled):
400 mm x 360 mm x 700 mm and 11 kg

Packed dimensions and weight (with draft tube extension removed for packing):
0.15 m^3 and 15 kg

Guide vanes:
6 off, fully adjustable from fully closed to fully open

Impeller:
80 mm diameter, 10 blades

Turbine speed:
Maximum 1100 $rev.min^{-1}$

Turbine power:
Maximum 3 Watts

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infoWERK is a leading expert in the development of eLearning courseware, learning system solutions, teaching and AV equipment.

Furthermore infoWERK is the representative and system integrator of "TecQuipment".

TecQuipment is one of the global leaders in technical teaching equipment for engineering. If you are interested in one of TecQuipment's products feel free to contact us at:

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