



Fluid Mechanics

H8

Impact of a Jet

Investigates the force generated by a jet striking plates (representing turbine vanes)



- Includes flat and hemispherical plates
- Clear vessel so that students can see what is happening
- Extra (optional) angled and conical plates
- Quick and accurate force measurements
- Ideal for demonstrations as well as in-depth experiments
- Works with Tecquipment's Gravimetric or Volumetric Hydraulic Benches for easy installation

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- An ISO 9001 certified company

H8

Impact of a Jet

Description

To understand correctly how a turbine (a Pelton wheel for example) works, students need to understand how jet deflection produces a force on turbine vanes. They also need to know how this force affects the rate of momentum flow in the jet.

The Impact of a Jet apparatus shows students the force produced by a jet of water as it strikes a flat plate or hemispherical cup. They can then compare this to the momentum flow rate in the jet. To extend the range of investigations, the 120-Degree Conical Plate and 30-Degree Angled Plate (H8a) are available separately.

For use with TecEquipment's hydraulic benches (H1 or H1D, available separately), the equipment comprises a transparent cylinder containing a vertically tapered nozzle and a test plate. The cylinder is on legs and mounts on the top of the hydraulic bench. The nozzle, supplied by the hydraulic bench, produces a high-velocity jet of water which hits the test plate. The test plate connects to a weigh beam assembly with jockey weight which measures the jet force. A drain tube in the base of the cylinder directs water back into the hydraulic bench, allowing accurate flow rate measurement.

All test plates are all easily interchangeable, taking only a few seconds and needing no tools.

To perform experiments, students level the apparatus and zero the weigh beam assembly. They set the flow from the hydraulic bench to maximum, and measure the jet force. They reduce the flow from the hydraulic bench in several increments. At each increment they record the force of the jet on the plate and the flow rate. They then repeat the experiments for different test plates. Students compare their experimental results to those calculated from theory, working out graphs of rate of delivery of momentum against force on the plate.

Standard Features

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

Experiments

- Measurement of the impact force on a flat plate and comparison with momentum change
- Measurement of the impact force on a hemispherical plate and comparison with momentum change
- Measurement of the impact force on an inclined flat plate (available separately) and comparison with momentum change
- Measurement of the impact force on a conical plate (available separately) and comparison with momentum change

Essential Base Unit

- Gravimetric Hydraulic Bench (H1) **or**
- Volumetric Hydraulic Bench (H1D)

Recommended Ancillaries

- 120-degree Conical Plate and 30-degree Angled Plate (H8a)



120 degree Conical Plate



30 degree Angled Plate

H8

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Essential Services

Water supply:

From the Hydraulic Bench (H1 or H1D)

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

Specification – H8

Nett dimensions: 720 mm x 520 mm x 470 mm

Packed dimensions and weight:

0.176 m³ and packed 13 kg

Flat plate:

74 mm diameter, normal to and coincident with the jet axis

Hemispherical plate:

60 mm diameter

Ancillaries (included):

All necessary pipe clips and tubing

Specification – H8a

Packed weight: 1 kg

Conical plate: 75 mm diameter 120°

Angled plate: 75 mm diameter 30°



H8 shown on the Volumetric Bench (H1D) – available separately

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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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