

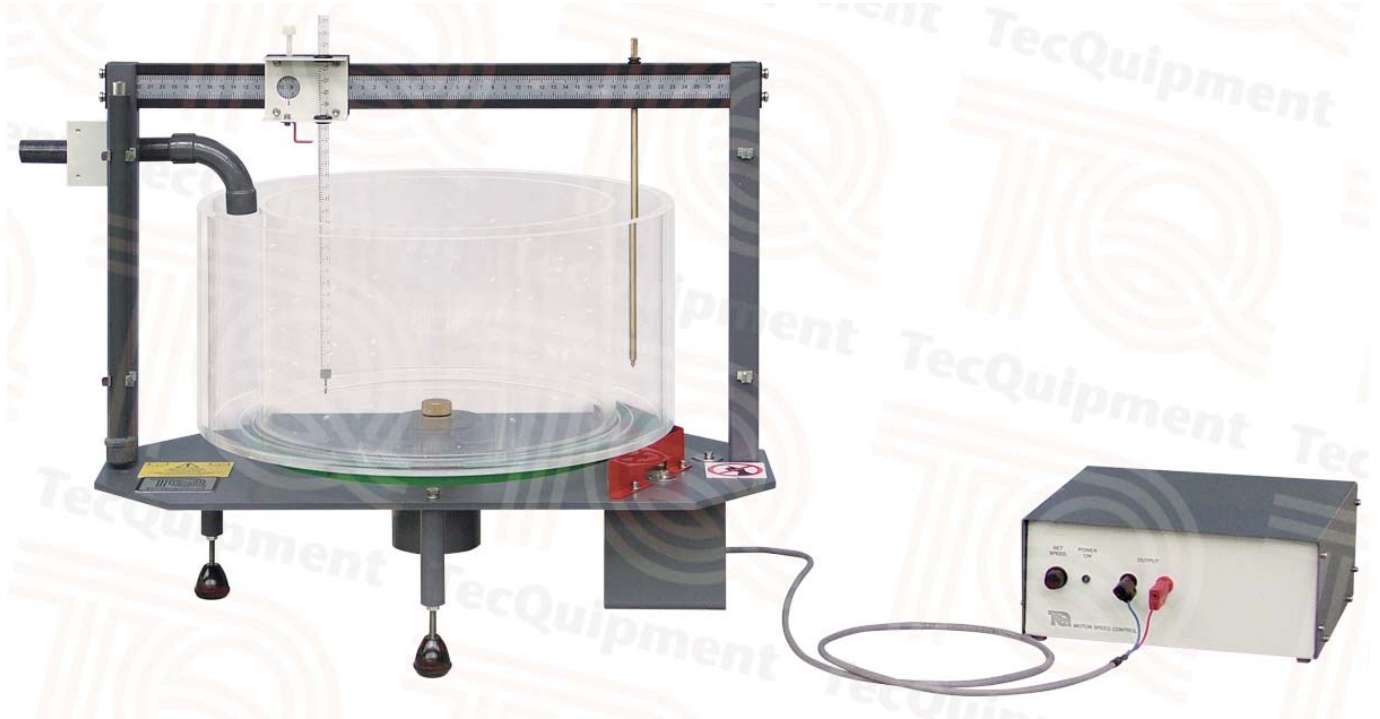


Fluid Mechanics

H13

Vortex Apparatus

Studies the phenomena of free and fixed vortices



- For studies of both free and forced vortices
- Transparent vessel - users can see the vortices from all angles
- Includes a traverse probe to measure water surface profile
- Low-voltage variable speed motor for safety
- Ideal for classroom demonstrations as well as laboratory experiments
- Compact and easily installed in the laboratory
- Works with either of TecEquipment's Hydraulic Benches (H1 or H1D)

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- An ISO 9001 certified company

H13

Vortex Apparatus

Description

The TecEquipment Vortex Apparatus enables students to produce both free and forced vortices, and measure the vortex water surface profile.

The equipment consists of a transparent vessel on a support frame, which mounts on a TecEquipment hydraulic bench (Gravimetric or Volumetric Hydraulic Benches, H1 or H1D - available separately). It may also work with another suitable clean water supply and drain.

A low-voltage, variable-speed motor rotates the vessel about its vertical axis. A speed-control unit (included), sited away from the main apparatus, controls the speed of rotation.

To produce a forced vortex, students add water to the rotating vessel until it is about half full. A forced vortex forms. After a few minutes the vortex becomes constant, and students can measure the surface profile using the traverse probe. The traverse probe can move both horizontally and vertically, and both axes have linear scales. Students can also measure distribution of total head by replacing the traverse probe with a Pitot tube.

To produce a free vortex, students place a smaller, perforated transparent cylinder inside the main vessel. This forms an annulus into which a continuous water supply is directed. When the vessel rotates, water passes through the perforations and spirals slowly inwards to a small hole in the centre of the base of the vessel. The surface falls rapidly towards the centre and produces an air core. Students measure the surface profile using the traverse probe.

Standard Features

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



Shown fitted to the Volumetric Hydraulic Bench (H1D), available separately

Experiments

- Determination of the surface profile of a forced vortex
- Determination of the surface profile of a free vortex
- Determination of the total head variation in a forced vortex
- Comparison of results with theoretical predictions

Essential Base Unit

- Gravimetric Hydraulic Bench (H1)
or
- Volumetric Hydraulic Bench (H1D)
or
- Suitable water supply and drain

Essential Services

Electrical supply:

Earthed single-phase a.c. 88 VAC to 264 VAC, 50/60 Hz

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

Nett Dimensions and Weights:

Vortex Vessel: 650 mm x 400 mm x 600 mm and 20 kg.

Speed Controller: 250 mm x 270 mm x 110 mm and 3.5 kg.

Packed Dimensions and Weight:

0.3 m³ and 33 kg

Transparent cylinder:

Approximately 380 mm wide x 180 mm deep

Perforated cylinder:

Approximately 286 mm wide x 180 mm deep

Instrumentation:

Traverse probe and Pitot tube with scales calibrated in millimeters

Water supply (if no TecEquipment hydraulic bench is available):

Up to 8 litres a minute

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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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