



Fluid Mechanics

H5

Venturi Meter

Allows students to see and measure the complete static head distribution along a horizontal Venturi tube



- Robust circular-section Venturi tube
- Eleven pressure tapings along the tube
- Direct measurement of static heads
- Complete pressure distribution clearly visible
- Compact and simple to operate
- Works with TecEquipment's Gravimetric or Volumetric Hydraulic Benches for easy installation

- TecEquipment Ltd, Bonsall Street, Long Eaton, Nottingham NG10 2AN, UK
- **T** +44 115 972 2611 • **F** +44 115 973 1520 • **E** info@tecquipment.com • **W** www.tecquipment.com
- An ISO 9001 certified company

H5

Venturi Meter

Description

TecEquipment's Venturi Meter is typical of meters used throughout industry. However, it has many more pressure tapings, connecting to water manometers, which allow full study of the pressure distribution along the convergent-divergent passage.

The apparatus is for use with the Gravimetric or Volumetric Hydraulic Bench (H1 or H1D, available separately). Because these benches measure absolute flow rate, students can find the Venturi meter coefficients over a range of flow conditions.

The apparatus includes a horizontal Venturi tube, a downstream flow-control valve and manometer tubes. A manometer panel holds the manometer tubes vertically. A common manifold above the tubes has an air pressure-control valve. The base has adjustable feet. The manometer panel has a scale behind the manometer tubes for direct reading of the water levels in the tubes. Plastic materials and corrosion-resistant finishes throughout the equipment protect against corrosion.

Water enters the Venturi meter and its flow-control valve sets the flow rate. This valve is downstream, so it does not cause any upstream turbulence.

To adjust the datum water level in the manometer tubes, students connect a hand-pump (included) to the air pressure-control valve above the manometer tubes.

To perform experiments, students set and measure the flow rate through the Venturi. They measure the head at the cross-sectional area at the upstream section, and the head at the throat section. They also note the pressure distribution along the rest of the meter. They then repeat the procedure, reducing the flow rate in increments and taking similar readings each time. Students can compare ideal pressure distribution to measured pressure distribution and calculate the coefficients of discharge for the meter.

Standard Features

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

Experiments

Comprehensive study of a Venturi meter and Bernoulli's Theorem, including:

- Direct measurement of the static head distribution along a Venturi tube
- Comparison of experimental results with theoretical predictions
- Measurement of the meter coefficient of discharge at various flow rates

Essential Base Unit

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

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

Operating relative humidity range:

80% at temperatures < 31°C decreasing linearly to 50% at 40°C

Specifications

Nett dimensions: 720 mm x 650 mm x 300 mm

Packed dimensions and weight: 0.14 m³ and 15 kg

Maximum flow rate: Nominally 27 L.min⁻¹

Venturi tube material: Aluminium

Inside diameter of Venturi inlet: 26 mm

Inside diameter of Venturi throat: 16 mm

Inside diameter of Venturi outlet: 26 mm

Pressure tapings: 11

Manometer scale: Millimetres

Manometer tube range: 0 to 400 mm

Accessories (included): Hand-pump, outlet tubing, pipe clips

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infoWERK Medien & Technik GmbH

Martinsbühel 6 / A-6170 Zirl / Austria

Phone: +43 (0) 5238 52099-0 / Fax: +43 (0) 5238 52099-40

E-Mail: info@infowerk.at / Website: infowerk.at

Otto-Dürr-Straße 25

D-70435 Stuttgart, Zuffenhausen/ Germany

Phone: +49 (0) 711 342471-0 / Fax: +49 (0) 711 342471-11

E-Mail: info@de.infowerk.at / Website: infowerk.at