

BERNOULLI'S THEOREM DEMONSTRATOR HB100B



Year 1
study

1 to 2
participants

30 mins
setup

15 mins
duration

Space required
1(L) x 1(L)m

8
modules

Features

- Clear Venturi Section with 10 Pressure Tapping's
- Air Pump
- Throttle
- Pressure Probe
- Bench top

Description

The HB100B hydraulics bench module allows students to verify the Bernoulli's theorem with a practical demonstration. The water is fed from the HB100 base unit into the Venturi section and flows through one end and as the cross sectional area changes so does the pressure and velocity in accordance with the Bernoulli's equation. A horizontal Venturi is enclosed in a clear plastic cylinder having 10 pressure point tapplings that connect to water manometers as well as a total pressure manometer that traverses along the centre line of the Venturi section. The manometers connect to a common manifold that incorporates an air pressure control valve and a hand actuated pump. A datum water level can be adjusted using the pump. There is a flow control valve on the outlet portion of the Venturi. The manometers have a graduated scale placed behind them to allow for ease of measurement of the water level. The test section is arranged so the characteristics of the flow through the converging and diverging Venturi can be investigated. The flow can be measured by the optional HB100K. Once the end flow rate is set, the head measurements can be taken from each of the manometers to illustrate the pressure distribution along the test section. The test can then be repeated, decreasing the flow setting in increments. The ideal distribution can then be compared to that of the measured one. The coefficient of discharge for the meter can therefore be calculated.

Related Laws/Applications

- Bernoulli's
- Venturi
- Divergent/Convergent
- Aeronautical
- Aerodynamics
- Plumbing
- Hydraulics

Learning capabilities

- Investigation and verification of Bernoulli's principle
- Comparison of experimental results with theoretical predictions
- Direct measurement of the static head distribution along a Venturi tube.
- Measurement of the Venturi meter flow coefficient of discharge at various flow rates using optional HB100K.

Technical Specification

- Flow rate control tap
- Vertical tube manometers
- Max flow rate: 30 l/min (approx.).
- Inlet and Outlet inside diameter: Ø25mm
- Throat inside diameter: Ø15.6mm

Essential Ancillaries

- HB100/230 + HB100K
- or
- HB100/115 + HB100K

What's in the Box?

- Experimental Module
- Clear Venturi Section with 10 Pressure Tapping's
- Air Pump
- Throttle
- Pressure Probe
- Instruction manual
- Packing list
- Test sheet

You might also like

- F100B: Bernoulli's Equation

Weights & Dimensions

- 600(L) x 400(W) x 625(H)mm
- Weight: 5 kg

Essential Services

- HB100/230 + HB100K
- or
- HB100/115 + HB100K

Operational Conditions

- Storage temperature: -10°C to +70°C
- Operating temperature range: +10°C to +50°C
- Operating relative humidity range: 0 to 95%, non condensing

Ordering information

To order this product, please call PA Hilton quoting the following code: HB100B

All brand and/or product names are trademarks of their respective owners. Specifications and external appearance are subject to change without notice. The colour of the actual product may vary from the colour shown in the brochure.

Copyright © 2018 P.A. Hilton Limited. All rights reserved. This technical leaflet, its contents and/or layout may not be modified and/or adapted, copied in part or in whole and/or incorporated into other works without the prior written permission of P. A. Hilton Limited. Hi-Tech Education is a registered trade mark of P. A. Hilton Limited.

COUNTRY OF ORIGIN - UK WARRANTY PERIOD - 5 YEARS