BERNOULLI'S THEOREM AND CAVITATION

H500

This versatile unit demonstrates flow through a venturi and enables students to explore water velocity and pressure at four points along the venturi. When supplied with water at a higher pressure, the onset and effects of cavitation can be observed and investigated.



BOOST PUMP INCLUDED



KEY FEATURES

- Multifunctional: Combines Bernoulli's theorem and cavitation effect
- Transparent venturi provides students with a clear view of the experiments
- Ideal for classroom demonstrations and student hands on learning
- Piezometer valves isolate connections to allow high-pressure cavitation experiments
- Direct measurement of static heads
- Built from quality materials to maximise product longevity
- Lightweight and simple to operate
- Boost Pump Included

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TECQUIPMENT

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DESCRIPTION

BERNOULLI'S THEOREM: The core of the product is a clear tapped acrylic venturi tube with a downstream control valve. Water accelerates as it passes through the constriction in the tube, causing a drop in static pressure. Students can measure the pressure distribution across the venturi via the four scaled piezometer tubes.

CAVITATION: The phenomena of cavitation and its causes is one of the most important subjects in any course on fluid mechanics.

Students can create clear visible cavitation in the venturi and use the two dial gauges to measure the pressure across the venturi inlet and throat.

The H500 works with all TecQuipment's Hydraulic Benches. A boost pump has been included to create the ideal pressure for cavitation.

ESSENTIAL BASE UNIT

- Digital Hydraulic Bench (H1F)

RECOMMENDED ANCILLARIES

- Low Flow Range Display (H1L) for low flow rate measurements.*

*For specifications of optional ancillaries and experiments please see their individual datasheets.

LEARNING OUTCOMES

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.

Investigations into cavitation and the Venturi, including:

- Flow and pressure in the Venturi.
- Demonstrations of cavitation.
- How to predict the onset of cavitation.

STANDARD FEATURES

- Five-year warranty
- Manufactured in accordance with the latest European Union directives
- Supplied with a comprehensive user guide
- ISO9001 certified manufacturer

ESSENTIAL SERVICES

ELECTRICAL SUPPLY (SPECIFIED ON ORDER)

This apparatus must be earthed. Supply circuit for this device must be protected by a Residual Current Device no greater than 30 mA.

Single Phase: 220-240VAC, 50Hz, 5A

or

Single Phase: 110-120VAC, 60Hz, 10A

SPECIFICATIONS

TecQuipment is committed to a programme of continuous improvement; hence we reserve the right to alter the design and product specification without prior notice.

VENTURI UNIT DIMENSIONS: 760 mm high x 500 mm wide x 400 mm front to back, 7.2 kg.

PUMP DIMENSIONS: 505mm wide x 350mm high x 300 mm front to back 16kg.

SHIPPING DIMENSIONS (PALLET BOX): 900mm high x 650 mm wide x 830 mm front to back, 36 kg.

NUMBER OF VENTURI PRESSURE TAPPINGS: 4

VENTURI THROAT DIAMETER: 6mm

FLOW RATES:

Minimum flow rate for Bernoulli's experiment: 0.5l/min

Maximum flow rate for Bernoulli's experiment: 4.75l/min

Minimum flow rate for cavitation experiment: 38.5l/min

ADDITIONAL ACCESSORIES (INCLUDED):

- Boost Pump
- Hand-pump for adjusting the piezometer
- Pressure rated inlet and outlet tubing
- Heavy duty and Jubilee pipe clips
- 1 litre measuring jug
- Electronic timer (with battery and spare included)

OPERATING CONDITIONS

OPERATING ENVIRONMENT:

Laboratory

STORAGE TEMPERATURE RANGE:

–25°C to +55°C (when drained)

OPERATING TEMPERATURE RANGE:

+5°C to +40°C

OPERATING RELATIVE HUMIDITY RANGE:

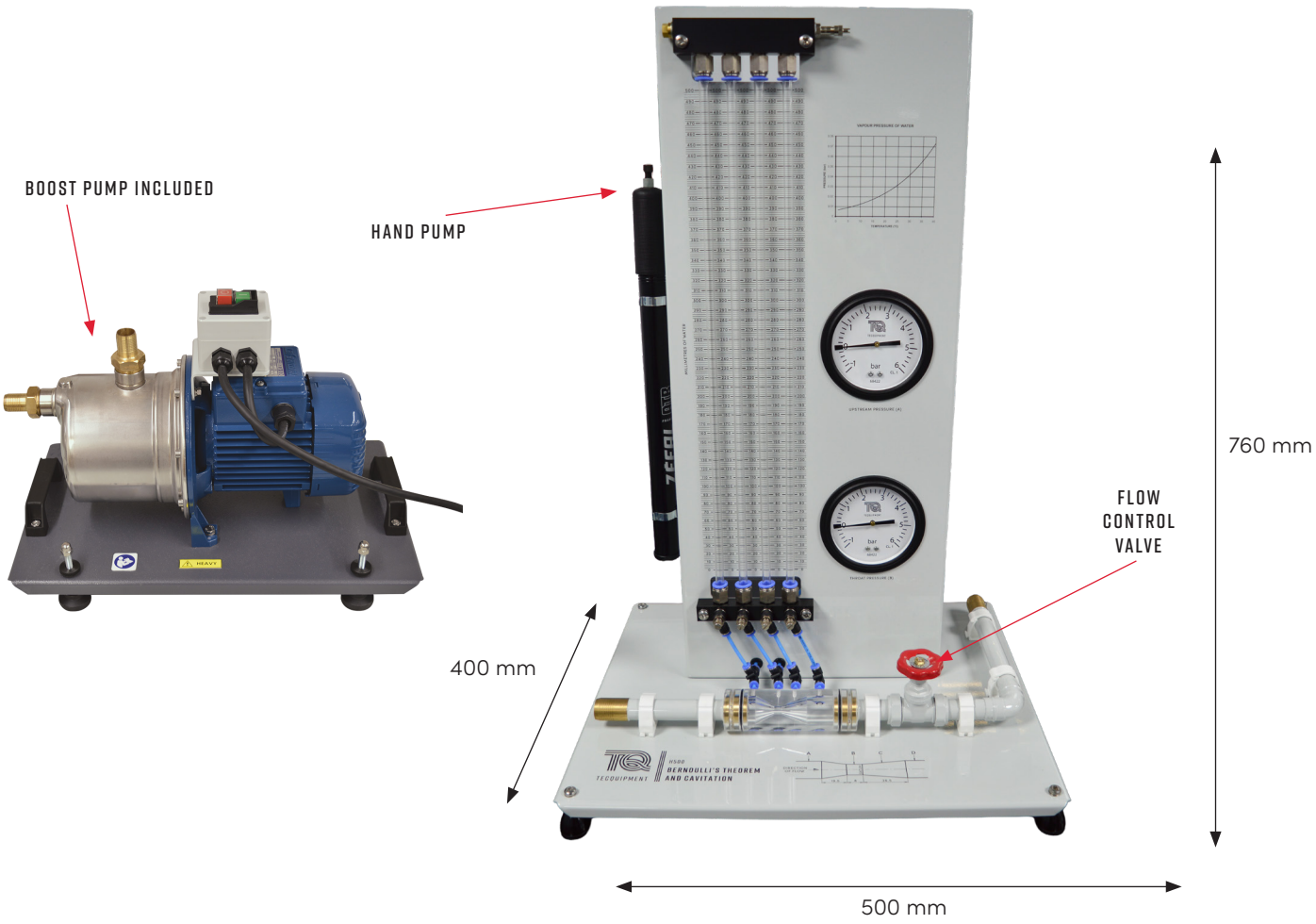
80% at temperatures < 31°C decreasing linearly to 50% at 40°C

SOUND LEVELS:

Noise levels: 85-90 dBA (at 45l/min flow rate). Hearing protection is recommended during cavitation experiments.

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