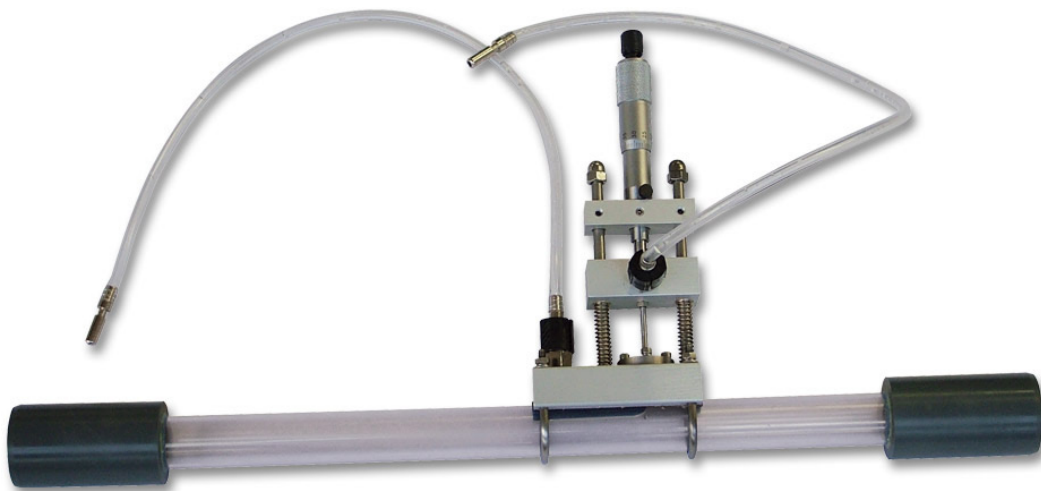




H40A

## PITOT TUBE

Pitot tube flow meter for use with the Flow Meter Calibration unit (H40)



### KEY FEATURES

- Popular flow meter for use with TecEquipment's Flow Meter Calibration unit (H40)
- Cost-effective and simple to use
- Unique 'quick-change' connections
- Shows the accuracy and use of a Pitot tube flow meter
- Shows the boundary layer effect and the fluid velocity profile
- Micrometer head for precise adjustment

### LEARNING OUTCOMES

- Accuracy of Pitot tube flow meters
- Losses and k value
- Calculation of the coefficient of discharge
- Velocity profile

### KEY SPECIFICATIONS

- Micrometer head
- 'Quick-change' connections

# PITOT TUBE

## DESCRIPTION

A popular flow meter for use with TecQuipment's Flow Meter Calibration unit (H40). It shows the accuracy and use of a Pitot tube flow meter.

This flow meter quickly and easily fits into place between the adaptors in the base unit of the Flow Meter Calibration unit. The manometers of the calibration unit show the pressure differences at the flow meter and across the overall flow meter assembly.

A precision micrometer head allows the user to accurately adjust the position of the Pitot tip that traverses across the inside of the pipe. The tip measures the change in pressure across the pipe for a given flow rate. A second tapping in the pipe wall measures the 'static' pressure. Plots of these pressures show the velocity profile in a pipe and explains the 'boundary layer' and surface friction in pipes and flow channels.

## STANDARD FEATURES

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

## ESSENTIAL BASE UNIT

- Flow Meter Calibration (H40) – with hydraulic bench

## DETAILED 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.

### NETT DIMENSIONS:

484 mm x 230 mm x 100 mm and 0.75 kg

### APPROXIMATE PACKED DIMENSIONS:

0.02 m<sup>3</sup> and 1.5 kg

## OPERATING CONDITIONS

### OPERATING ENVIRONMENT:

Laboratory

### STORAGE TEMPERATURE RANGE:

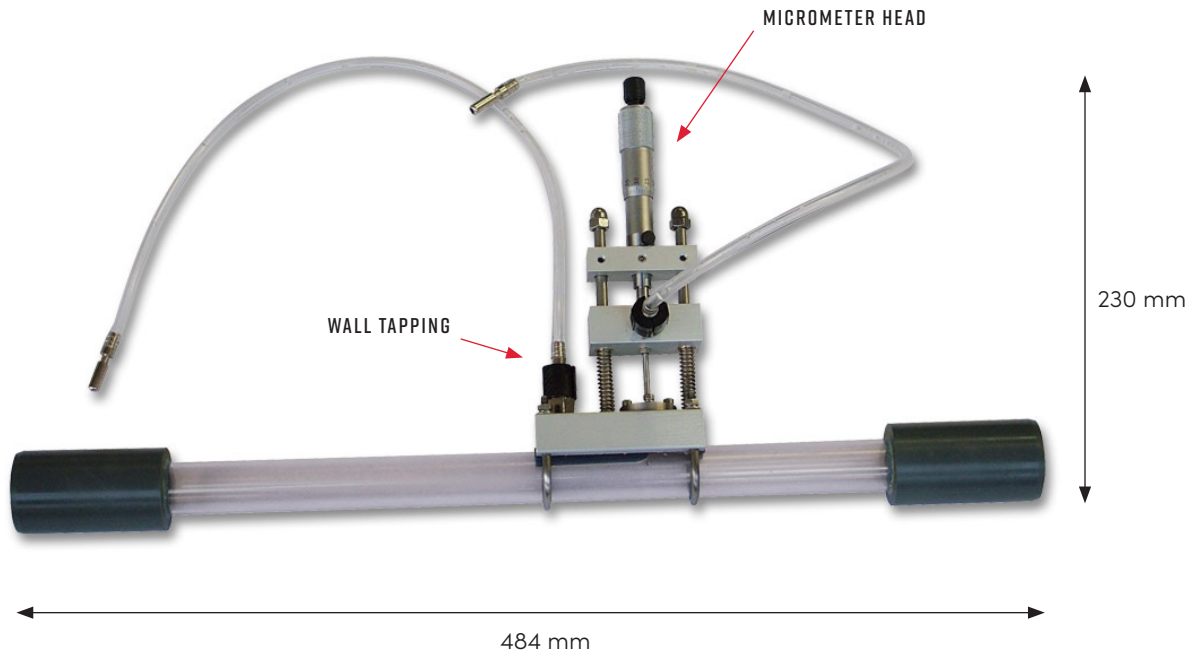
-25°C to +55°C (when packed for transport)

### OPERATING TEMPERATURE RANGE:

+5°C to +40°C

### OPERATING RELATIVE HUMIDITY RANGE:

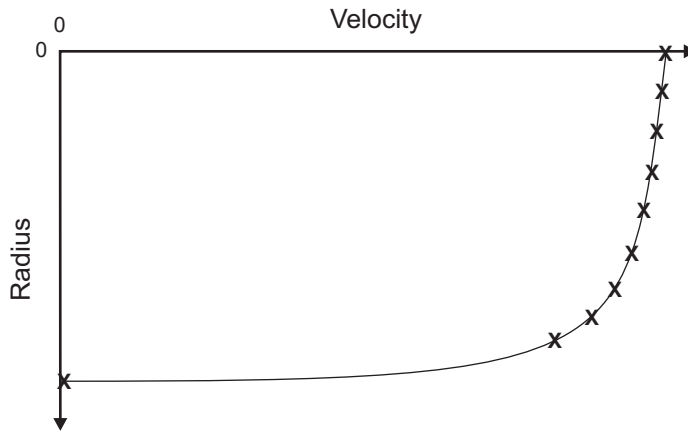
80% at temperatures < 31°C decreasing linearly to 50% at 40°C



## TYPICAL WORK ASSIGNMENTS

## VELOCITY PROFILE

This experiment asks the student to traverse the Pitot across the radius of the flow meter pipe, recording the pressures. From these results they calculate the changes in flow velocity and use this to produce a chart. They then use a trapezium rule (or area under the chart) to find the total velocity and flow, and compare with that measured by the hydraulic bench.



Hydraulic Bench Measured Flow =  $0.638 \text{ kg.s}^{-1}$

Pitot Tube Measured Flow using trapezium rule =  $0.6594 \text{ kg.s}^{-1}$