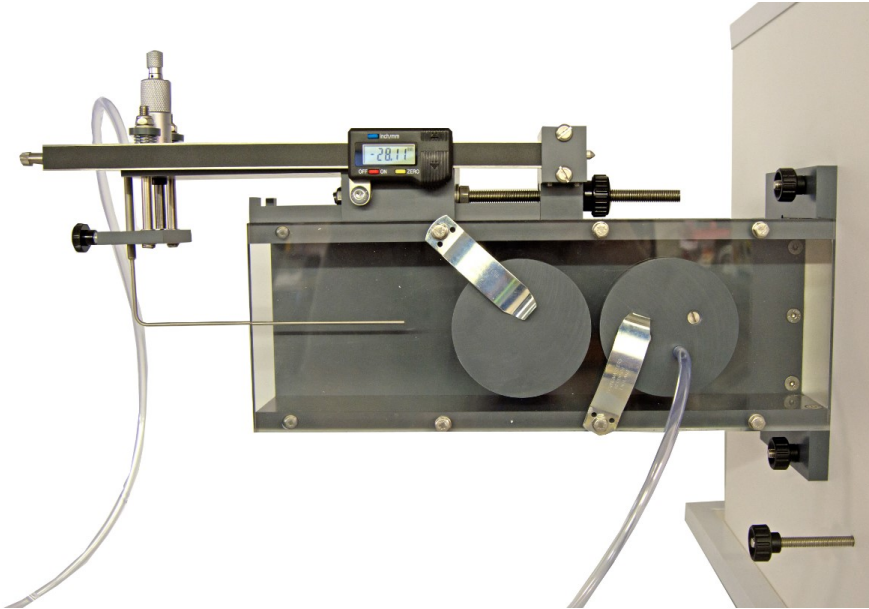


# PRINCIPLES OF AIRFLOW, PRESSURE AND VELOCITY DISTRIBUTION

## F100J



### Features

- Introduce students to the concept of airflow, velocity and pressure
- Reinforce the notion that airflow, velocity and pressure are interrelated and will affect system performance
- Provides students with a visual interpretation on system performance by plotting 3D map of pressure
- Part of a range of airflow accessories offering lower total cost of ownership

### Description

Understanding the interdependent nature of pressure, flow and velocity is important when designing a system and a student's understanding of these principles will allow them to exploit these outcomes in any design process. The PA Hilton unit utilises a Pitot tube which is precisely adjusted with a digital vernier slide horizontally and a non-digital micrometer vertically. There are two pressure tapping points, one in the Pitot tube to measure total pressure, one in the disk to measure static pressure and velocity at the cylinder surface. One disk is a blank, the other has a cylinder (with the pressure tapping) that is in the airflow. The purpose of this unit is to build up a 3D pressure map of the air as it flows over the cylinder. If the cylinder is in the left-hand position (blank on the right) the pressure map is drawn close to the cylinder. Swap over the disks to draw the pressure map further away from the cylinder.

### Learning capabilities

- Allows students to study the relationship between flow, velocity and pressure over a body
- Calculate the differences in a real world environment
- Determine how friction affects air velocity near surfaces
- Understand how shape can affect airflow
- Understand the impact that turbulent and laminar airflow can have on performance
- Static, dynamic and total pressure relationship with velocity
- Understand separation characteristics

### Technical Specification

- 0mm-100mm Horizontal Indicator
- 3/16 " Ball Bearing
- Thrust Race Bearing 8.1mm
- 0-25mm Micrometer
- 45mm Diameter test cylinder

### Essential Ancillaries

- F100 Base Unit
- F100A Manometer (if not already available within the lab)

**What's in the Box?**

- 1 x Pressure and Velocity Distribution Unit
- 1 x 8mm A/F Nut Runner
- 1 x 150mm Rule Black Finish
- 1 x F100J Pitot Tube
- 1 x M6 knurled grip knob
- 1 x M8 knurled grip knob

**You might also like**

- F100B - Bernoulli's Equation
- F100C - Boundary Layer Investigation
- F100D - Round Turbulent Jet Investigation
- F100E - Flow Around a Bend Investigation
- F100F - Jet Attachment Investigation
- F100G - Drag Force Investigation
- F100H -Flow Visualisation Investigation
- F100K - Principles Of Airflow, Friction Losses In Bends And Pipe Elements
- F100M - Principles of Airflow, Fan Test And Flow Measurement

**Weights & Dimensions**

- Net Dimensions: 340mm (excl pitot) x 100mm x 50mm (internal duct profile)
- Net weight: 5kg

**Essential Services**

- 220-240 Volts, Single Phase, 50Hz (With earth/ground). Line current up to 5A at 230v (for base unit) or
- 110-120 Volts, Single Phase, 60Hz (With earth/ground). Line current up to 10A at 110v (for base unit)
- Digital vernier battery powered (supplied with unit)

**Ordering information**

To order this product, please call PA Hilton quoting the following code:  
F100J - Principles of Airflow, Pressure And Velocity Distribution

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