

Fluid Mechanics study is generally a first year core study area for all engineering disciplines. There are key concepts and principles relating to flow physics that students need to understand as part of their learning. These being:

- Conservation laws for mass, momentum and energy
- Laminar and turbulent boundary layers
- The importance of common dimensionless groups
- A basic understanding of compressible fluid flow
- An awareness of turbulent flow
- Turbomachinery fluid mechanics
- Elementary potential flow theory

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Cutting-edge teaching products for fluid mechanics



Designed by engineers for engineers

Fluid Mechanics forms a key aspect of student learning in their first year as an engineering student. There are key concepts and principles that can be greatly enhanced by visualisation and experimentation, which positively impacts the study process and therefore, pass marks.

PA Hilton's world-leading range enables clear and comprehensive learning of materials and their properties covering a variety of theories and topics.

Distribution Module

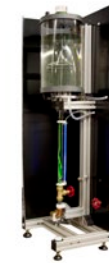
- This unit allows for the comparison of convergent and divergent nozzles with differing discharge areas.



Laminar & Turbulent Flow

HB100J* Osborne Reynolds Apparatus

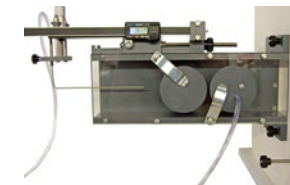
- Unit allows for the visualisation and investigation of Laminar and Turbulent flow.



Potential Flow

F100J Principles of Airflow, Pressure and Velocity Distribution

- Allows pressure to be measured at different points around a cylinder within an air flow.



F100H Flow Visualisation

- The duct allows students to investigate simple flow visualisation techniques.



F100E Flow Around a Bend Investigation

- Allows pressure to be measured at different points around the inner and outer radius.



NOTE: All units require their respective base unit's in order to operate, with the exception of the F865 which is a self-contained unit. Data logging* is available on some units. Please check our website for compatibility www.pahilton.co.uk

F100C Boundary layer investigation

- A unit for comparing and contrasting airflow over smooth and roughened surfaces and the effect that this has on pressure.



F100G Drag Force Investigation

- A unit that allows the drag of a body to be directly measured at a range of approach velocities.



Dimensionless Groups

H102G* Water Turbulent Flow Heat Exchanger

- Determination of surface heat transfer coefficient inside and outside the tube. Comparison of performance in concurrent and in counter-current flow.



Turbo Machinery

F300C* Experimental Impulse Turbine Module

- An air operated single stage, axial flow impulse experimental unit.



F300D* Experimental Reaction Turbine Module

- An air operated single stage, radial flow, two jet experimental unit.



F865* Two Stage Compressor Test Unit

- Allows investigation of single and two stage compressors, with or without intercooling.



Compressible Flow

F300B* Nozzle Pressure

Vortices

HB100A Free and Forced Vortices

- A benchtop unit offering students help with visualising and analysis of key principles relating to free and forced vortices.



Conservation of Energy/Viscous Flow

HB100B Bernoulli's Theorem Demonstrator

- A unit that demonstrates Bernoulli's theorem being the conservation of mass and energy through a flowing system.

