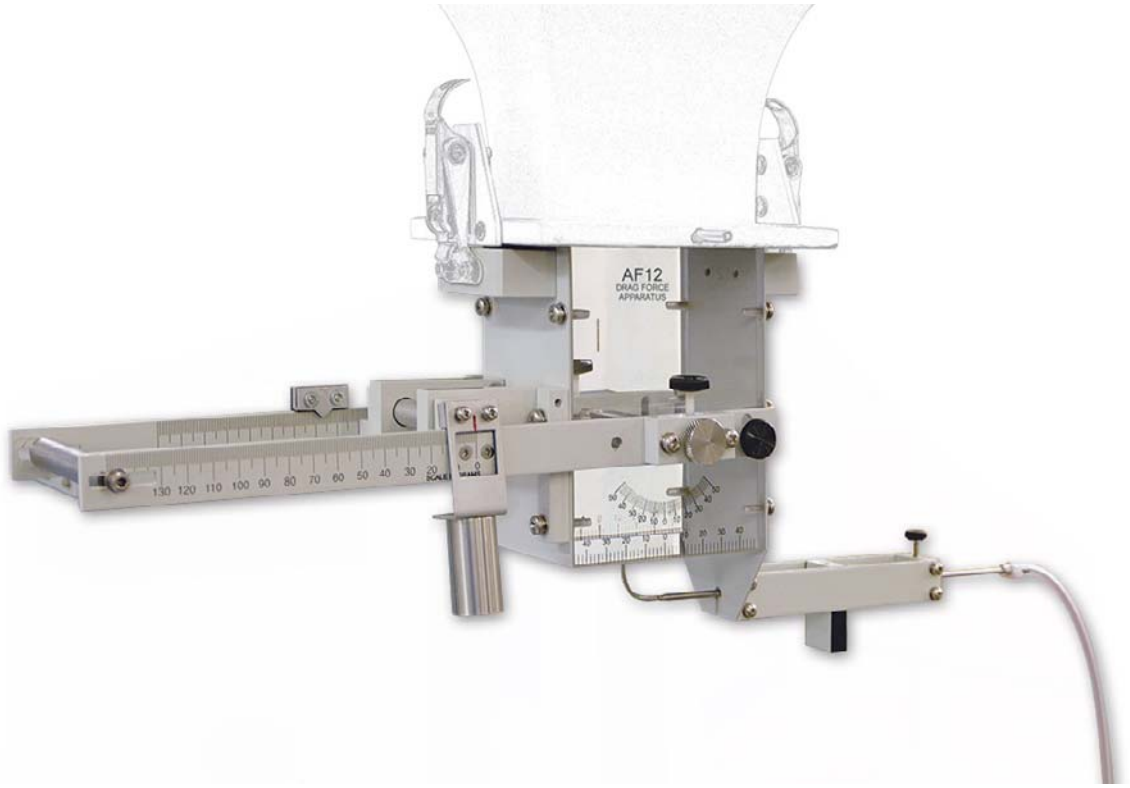
AF12

DRAG FORCE

Allows students to investigate the direct and indirect measurement of drag on various shapes



- One of a series of eight experiment modules that fits to the Modular Air Flow Bench (AF10)
- Compares drag for a cylinder calculated from a measured pressure distribution, and a wake traverse against that measured directly for a cylinder
- Allows comparisons of drag force between a cylinder, flat plate and aerofoil
- Toggle clamp connections to the Modular Air Flow Bench contraction for quick and easy fitment
- Quick-release couplings for rapid and reliable pressure measurement connections to the AF10a Manometer
- Test duct has transparent sides with clearly printed scales – allows students to see the experiment and accurately position the models and the Pitot tube

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AF12

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DESCRIPTION

This simple yet comprehensive experiment module consists of a duct with transparent front and rear. The front has scales printed on it to position the various parts during the experiments. A Pitot tube and simple mass balance are attached to the outside of the duct for wake traverse and direct drag measurements respectively.

It comes with three models all of the same frontal area:

- A cylinder with a protractor, and a pressure tapping in its outer wall
- A flat plate
- A symmetrical aerofoil shape with a NACA profile

All the models fit in the arms of the mass balance for the wake traverse and direct measurement experiments. For cylinder pressure distribution experiments, the arms of the mass balance can be rotated clear of the duct and the cylinder model fitted between the duct walls directly.

Both the Pitot tube and the cylinder tapping connect to the AF10a Manometer (ancillary) via flexible tubes fitted with quick-release couplings.

STANDARD FEATURES

- Supplied with a comprehensive User Guide
- Five-year warranty
- Manufactured in accordance with the latest European Union directives

ESSENTIAL BASE UNIT

- Modular Air Flow Bench (AF10)

ESSENTIAL ANCILLARIES

- Multitube Manometer (AF10a)

LEARNING OUTCOMES

- Determination of the drag coefficient by measurement of the pressure distribution around the cylinder.
- Determination of the drag coefficient by wake traverse.
- Determination of the drag coefficient around the cylinder by direct measurement and comparison to results obtained by pressure distribution and wake traverse.
- Direct measurement and comparison of drag coefficient between a cylinder, flat plate and aerofoil.

SPECIFICATIONS

PACKED DIMENSIONS AND WEIGHT:

0.2 m^3; 10 kg
100 mm x 50 mm transparent duct

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

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