



P3230

TWO DIMENSIONAL WIND TUNNEL

PRINCIPLE EXPERIMENTS

- ◆ Pressure profile around a transverse cylinder and derivation of drag force coefficient
- ◆ Pressure profile around an aerofoil section and derivation of lift and drag forces and coefficients
- ◆ Direct measurement of drag on a transverse cylinder
- ◆ Direct measurement of lift and drag on an aerofoil
- ◆ Variation of lift and drag forces and coefficients, and lift-drag ratio with aerofoil incidence

FEATURES

- ◆ High aspect ratio rectangular sub-sonic wind tunnel with clear acrylic test section
- ◆ Floating variable incidence model carrier
- ◆ Cylindrical cross-section model supplied
- ◆ Aerofoil model, with multiple static pressure tappings around the periphery
- ◆ Optional P3231 Two Component Balance for lift and drag measurement.
- ◆ Optional P3233 Smoke Generator for visualisation of stream lines
- ◆ Signal processing option available for all pressures, lift and drag measurements for data logging.

DESCRIPTION

Cussons P3230 Two Dimensional Wind Tunnel is designed for use with either Cussons P3200 Air Flow Bench or Cussons P3240 Fan Test Stand. The wind tunnel has a high aspect ratio clear acrylic test section 250 mm high and 65 mm deep. The test section can be fitted with two interchangeable variable incidence model carriers, one with a cylindrical section and the other with a low velocity sub-sonic aerofoil. The cylinder has a single static tapping which can be used to plot the pressure profile around the cylinder. The aerofoil has 14 static pressure tappings allowing the pressure profile around the nose and along both the upper and lower cambered surfaces to be measured.

Pressures can be measured using Cussons P3202 Multitube Manometer or the P3206 Multiple Pressure transducer Module which provides 0-10 Volt analogue outputs for connection to a computer or data logging system.

TENDER SPECIFICATION

A two dimensional wind tunnel with nominal dimensions of the working section of 250 mm high by 65 mm deep. The material of construction is clear acrylic, where appropriate, and the front section is removable. Two models are provided, including an aerofoil section having pressure tappings around the periphery enabling a pressure profile around the model to be drawn for different angles of attack.

Provision is made in the test section for the insertion of an optional smoke generator rake; traversing pitot-static tube and the optional anemometer P3204. The test section can be traversed at a number of planes allowing the uniformity of the flow to be verified. The pitot-static tube or anemometer can also be used upstream of the test models to determine the undisturbed incident flow velocity.

The model carrier can be directly coupled to the optional two component balance P3231 which provides independent measurement of lift and drag forces. A further option, P3207 is available to replace the spring balance with load cells providing 0-10 Volt analogue outputs for connection to a computer or data logging system. A Boundary Layer Experiment P3232 is also available.

REQUIRED ANCILLARIES:

- P3202 Multitube Manometer.
- P3231 Two Component Balance.
- P3232 Boundary Layer Experiment.
- P3233 Smoke Generator
- P3204 Anemometer
- P3206 Data Logging for Multiple Pressures
- P3207 Data Logging for Two Component Balance