AF15

FLOW AROUND A BEND

Allows students to measure the pressure distribution in a smooth rectangular bend

- One of a series of eight experiment modules that fits to the Modular Air Flow Bench (AF10)
- Shows the pressure distribution in a smooth rectangular bend as an example of internal flow problems
- 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
- Highly visual plot of the pressure profile on the manometer

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TECQUIPMENT

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DESCRIPTION

This module consists of a smooth rectangular bend with ten static tapping points on both the inner and outer curved walls, plus a further nine along the radius. Each one of the tapping points has a flexible tube with quick-release connector for connection to the AF10a Multi-tube Manometer (ancillary).

When air passes through the bend it creates areas of high and low pressure. The resulting pressure plots on the multi-tube manometer are highly visual which enhances student understanding. The readings allow the students to plot the pressure profile and calculate a value for the loss coefficient K.

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

- Pressure distribution along the curved inner and outer walls.
- Radial pressure distribution and comparison with that predicted assuming free vortex velocity distribution.
- Calculation of loss coefficient (K).

SPECIFICATIONS

PACKED DIMENSIONS AND WEIGHT:

0.2 m^3; 10 kg

INNER WALL:

10 tappings

OUTER WALL:

10 tappings

45° RADIAL SECTION:

9 tappings

REFERENCE AT INLET:

1 tapping

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