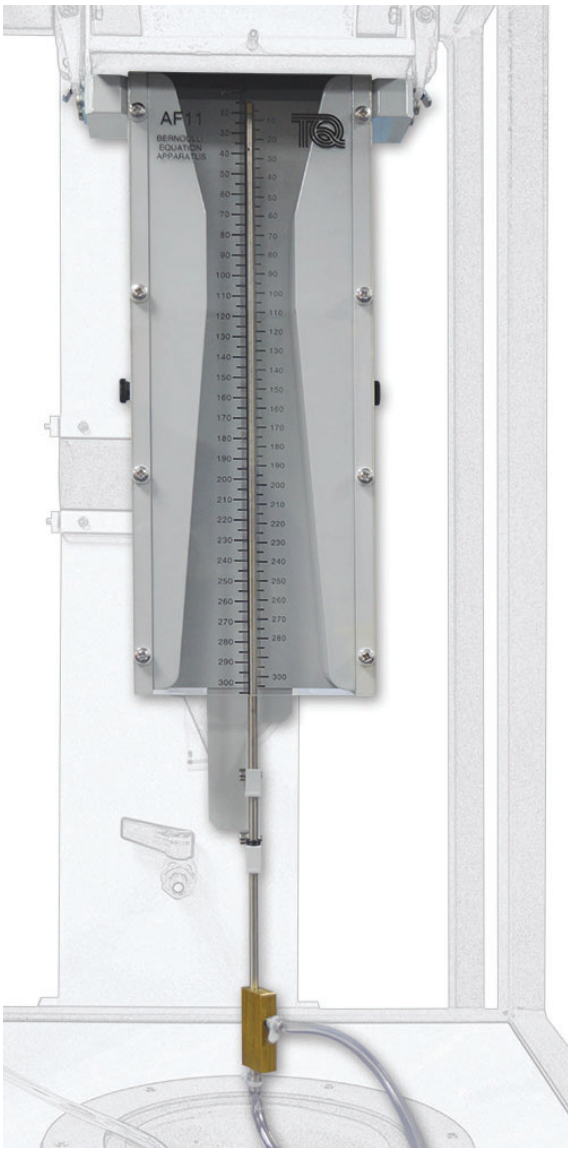
BERNOULLI'S EQUATION

AF11

Allows students to measure the pressure distribution in a convergent-divergent duct to confirm Bernouli's equation.



KEY FEATURES

- One of a series of eight experiment modules that fit to the Modular Air Flow Bench (AF10)
- Quickly and simply illustrates Bernoulli's equation for air, and its limitations due to boundary layer effects
- Toggle clamp connections to the Modular Air Flow Bench contraction for quick and easy fitment
- Quick-release couplings for rapid and reliable pressure connection to the AF10a Manometer
- Transparent front to the duct so that the profile of the test nozzle and the position of the Pitot static tube can be seen clearly

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DESCRIPTION

This experiment module illustrates Bernoulli's equation as applied to a convergent-divergent duct. A Pitot static tube measures both the total pressure and the static pressure independently. The tube traverses along the axis of the duct and connects to the AF10a Manometer (ancillary) via flexible tubes fitted with quick-release couplings.

A clear scale printed on the duct helps to show the probe position. Students confirm the constant total pressure while observing the rise and fall of the static pressure. They compare the velocity-area ratio as calculated from Bernoulli's equation to the experimental results.

STANDARD FEATURES

- Supplied with a comprehensive user guide
- Five-year warranty
- Manufactured in accordance with the latest European Union directives
- An ISO 9001 certified company

ESSENTIAL BASE UNIT

- Modular Air Flow Bench (AF10)

ESSENTIAL ANCILLARIES

- Multitube Manometer (AF10a)

LEARNING OUTCOMES

- Confirmation of Bernoulli's equation
- The use of a Pitot static tube and water manometer

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