Methods of Flow Measurements Apparatus (EDC-FM-110FM)

EXPERIMENTAL DATA:

- Application of the Bernoulli equation for incompressible fluids
- Direct comparison of flow measurement using a Venturi meter, orifice plate and rotameter

DESCRIPTION:

This experimental unit consists of a pipe section containing three flow measurement devices, Rotameter, Orifice plate and Venturi meter. All pressure tapings connect to manometers held on a vertical PMMA panel behind the pipe work. The manometers measure and show pressure distribution against a calibrated scale. To perform experiments, students connect the water supply and set a low, steady flow through the apparatus.

This unit can be used with EDC-FM-100HB or can also be used with laboratory water supply. The on-board flow control valve allows students to observe the pressure losses at different flow rates.

To adjust the datum water level in the manometer tubes, students connect a hand-pump (included) to the valve above the manometer tubes.

SCOPE OF DELIVERY:

- 1 x EDC-FM-110FM
- 1 x Instructional Manual

DIMENSIONS AND WEIGHT:

- Minimum size: 1100 x 675 x 900mm (L x W x H)
- Approximate weight: 28kg

TECHNICAL DATA:

Measuring Instruments:

- Venturi meter, orifice plate, and rotameter
- 8 tube manometers to determine the pressure distribution in Venturi meter, orifice plate, and rotameter
- Pitot tube for total pressure measurement

Venturi Nozzle:

- Cross-sectional area: 85 to 340mm²
- Inlet angle: 10.5°
- Outlet angle: 4°

Flow Measurement Devices:

- Orifice plate flow meter: Diameter = 14mm
- Measuring nozzle: Diameter = 18.5mm
- Rotameter: Maximum flow rate = 1700 L/h

Manometers:

- 8 tube manometers with a pressure range of 390mmWC

Materials & Fittings:

- Acrylic tubes and acrylic Venturi holdings
- PVC pipe fittings

Water Supply:

- Compatible with EDC-FM-100HB base module or laboratory water supply