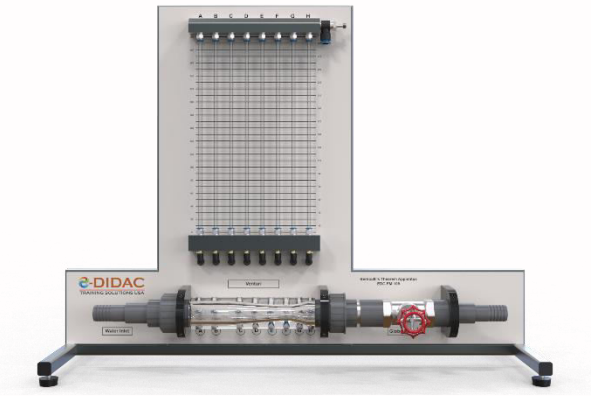
Bernoulli's Theorem Demonstration Apparatus (EDC-FM-101B)

EXPERIMENTAL DATA:

- Direct measurement of the static head distribution along a Venturi tube.
- Comparison of experimental results with theoretical predictions.
- Measurement of the meter coefficient of discharge at various flow rates.
- Determination of Flow coefficient



DESCRIPTION:

This experimental unit consists of a pipe section containing a venturi tube with transparent front panel, a flow control valve downstream and measuring points for measuring the static pressures. Used to study Bernoulli's principle which describes the relationship between the flow velocity of a fluid and its pressure. All pressure tapings connect to manometers held on a vertical panel behind the pipe work. The manometers measure and show pressure distribution against a calibrated scale. Axially moveable Pitot Tube for determining the total pressure at various points within the Venturi tube. 6 tube manometers for displaying the static pressures and single tube manometer for displaying the total pressure. To perform experiments, students connect the water supply and set a low, steady flow through the apparatus. Water supply using the base module or via laboratory supply. Flow visualization using prepared CFD simulations. Digital multimedia teaching material online in the Media Center: E Learning course, prepared CFD simulations;

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. Flow rate determined by the base module.

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

TECHNICAL DATA:

Venturi Nozzle:

- Cross-sectional area (A): 84...338 mm²
- Inlet angle: 10.5°
- Outlet angle: 4°

Pitot Tube:

- Movable range: 0...200mm
- Inner diameter: Ø 1mm

Pipes & Pipe Connectors:

- Material: PVC

Measuring Ranges:

- Static pressure: 40...455 mmWC
- Total pressure: 90...455 mmWC

DIMENSIONS AND WEIGHT:

- Minimum dimensions: 1100 x 680 x 900 mm (L x W x H)
- Approximate weight: 28kg

SCOPE OF DELIVERY:

- 1 experimental unit
- 1 set of instructional material
- 1 online access to the Media Center