Orifice and Jet Flow (Jet Trajectory) Apparatus (SMT-FM-11)

SMT-FM-11 allows a user to study and visualize the profile of a water jet. This apparatus allows students to measure the Decrease in flow, contraction of stream and energy losses. Additionally, the contraction coefficient can be determined as a characteristic for different contours. The experimental unit includes a transparent PPI tank, a point gauge and a panel for visualizing the jet paths. An interchangeable nozzle is installed in the tank's water outlet to facilitate the investigation of various openings. Four nozzles with different diameters and contours are provided along with the unit.

To visualize the trajectory, the issued water jet is measured via a point gauge that consists of movable steel rods. The rods are positioned depending on the profile of the water jet. This results in a trajectory that is transferred to the panel. The tank contains an adjustable overflow and a scale. In this way, a precise adjustment and accurate reading of the fill level are possible.

The experimental unit is positioned easily and securely on the work surface of the SMT-FM-100 base module. The water is supplied and the flow rate measured by SMT-FM-100. Alternatively, the experimental unit can be operated by the laboratory supply.

TECHNICAL SPECIFICATIONS

Specifications:

- Compact size, easy to use and handle.
- Study of horizontal flows from tanks.
- Determining the contraction coefficient for different outlet contours and diameters.
- Tank with adjustable overflow and scale.
- Four interchangeable nozzles with different diameters and contours.
- Point gauge with nine movable rods for visualisation of the jet path.
- White panel for recording the trajectory.
- Flow rate determined by SMT-FM-100 base module.
- Water supply using SMT-FM-100 base module or via laboratory supply.

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Technical Data:

- Tank:
  - Transparent PMMA
  - Height: 500mm.
  - Diameter: 200mm.
  - Contents: approx. 15l.
- Nozzles with rounded contour:
  - 1x diameter: 4mm.
  - 1x diameter: 8mm.
- Nozzles with square contour:
  - 1x diameter: 4mm.
  - 1x diameter: 8mm.
- Point gauge, 9 movable S.S rods:
  - Length: 350mm.
- LxWxH: 850x4500x600mm.
- Weight: approx. 25kg.

- Accessories (Included)
- All necessary Flexible pipes and fittings.
- Instruction Manual

- Operating Conditions
- Laboratory Temperature: 5°C to 40°C

- Note:

This product may produce small splashes of water in use, so you must use it at a safe distance from electrical supplies. ESOLS recommends approximately 2.0 m.

Experimental Data:

- Study of Water jet Trajectory.
- Measuring the trajectory of the water jet at different outlet velocities.
- Study of effects on velocities with respect to level of water in the tank.
- Determination of the contraction coefficient for different contours and diameters.
- Comparison of the actual and theoretical outlet velocity.

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