



## Impact of a Jet Apparatus (SMT-FM-06)

An impact of jet apparatus is used to investigate the reaction force produced by the impact of a jet of water on to various target vanes. This type of impact forces of water is used to drive the turbines. In SMT-FM-06 jet forces are generated and studied with the aid of a water jet that acts on and is diverted by an interchangeable deflector. The experimental unit includes a transparent PPI tank, a nozzle, four PVC interchangeable deflectors with different deflection angles and a weight-loaded scale. The force of the water jet is adjusted via the flow rate. Experiments study the influence of flow velocity and flow rate as well as of different deflection angles. The jet forces generated by the water jet are measured on the weight-loaded scale. The forces are calculated using the momentum equation and compared with the measurements.

The equipment requires a Hydraulics Bench (SMT-FM-100) as the source of water supply.

### TECHNICAL SPECIFICATIONS

#### Specifications:

- Compact size, easy to use and handle.
- Investigation of jet forces and demonstration of the principle of linear momentum.
- Tank made of transparent material for observing the experiments.
- Nozzle for generating the water jet.
- Jet force can be adjusted via flow rate.
- Four different shaped deflectors: flat surface, oblique surface, semi-circular surface, conical surface.
- Measurement of the jet forces via the weight loaded scale.
- Flow rate determined by SMT-FM-100 base module.
- Water supply using SMT-FM-100 base module or via laboratory supply.



## Technical Data:

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- Tank:
  - Transparent PMMA
  - Inner diameter: 200mm.
  - Height: 350mm.
- Nozzle:
  - Diameter: 9mm.
- Deflector:
  - Flat surface: 90°.
  - Oblique surface: 45°/135°.
  - Semi-circular surface: 180°.
  - Conical surface: 135°.
- Weights:
  - 4x 0.1N.
  - 4x 0.2N.
- LxWxH: 350x350x750mm.
- Weight: approx. 18kg.

### 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:

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- Study of the jet forces.
- Measurement of the impact force on flat, hemispherical, angled flat and conical plates and comparison with momentum change.
- Measurement of flow rate and flow velocity.