



Cavitation Apparatus (SMT-FM-29)

Cavitation is the formation of vapour cavities in a liquid, small liquid-free zones ("bubbles" or "voids"), that are the consequence of forces acting upon the liquid. It usually occurs when a liquid is subjected to rapid changes of pressure that cause the formation of cavities in the liquid where the pressure is relatively low. When subjected to higher pressure, the voids implode and can generate an intense shock wave.

SMT-FM-29 is suitable for the demonstration of cavitation processes using the example of a Venturi nozzle. Pressure energy is converted into kinetic energy and vice versa in the Venturi nozzle. Vapour bubbles form in the narrowest cross-section. To visualise the flow processes the experimental unit includes a Venturi nozzle made of transparent PMMA. There are three pressure measuring points on the Venturi nozzle: at the inlet, at the narrowest point and at the outlet. The input pressure can be adjusted via a pressure reducing valve. The flow rate and the pressures can be adjusted via two ball valves which are located at the inlet and outlet of the pipe system.

This unit can be operated by Laboratory supply of with any Hydraulic Bench.

TECHNICAL SPECIFICATIONS

Specifications:

- Compact unit.
- Investigation of cavitation processes in a Venturi nozzle.
- Round Transparent Venturi for robust use and visualisation.
- Venturi nozzle with 3 pressure measuring points.
- Adjustment of the flow rate via Gate valve.
- Thermometer for measuring the temperature.
- Manometer for displaying the pressure curve in the Venturi nozzle.
- Flow rate determined by SMT-FM-100 base module.
- Water supply using SMT-FM-100 base module.
- Supplied with a comprehensive user guide.
- Acrylic Tubes and Acrylic Venturi Holdings.
- PVC Pipe Fittings.



Technical Data:

Venturi nozzle:

- Transparent PMMA
- Angle at the inlet: 11°
- Angle at the outlet: 4°
- Inlet Diameter: 18mm
- Venturi Throat Diameter: 3.5mm
- Outlet Diameter: 18mm

Pipes and pipe connectors: PVC.

Max Flow Rate: 100L/min

Manometer Measuring Range:

-1 to 1.5 Bar

LxWxH: 600x400x600mm.

Weight: approx. 20kg.

Accessories (Included)

All necessary Flexible pipes and fittings.

Instruction Manual

I. 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:

Flow and pressure in the Venturi

Demonstrations of cavitation

How to predict the onset of cavitation

Pressure as a function of the flow rate

Cavitation processes at different flow rates and pressures