Hydrostatic Pressure & Centre of Pressure Apparatus (SMT-FM-04B)

Hydrostatic pressure refers to the pressure that any fluid in a confined space exerts. If fluid is in a container, there will be some pressure on the wall of that container. The effect of hydrostatic pressure is highly important in many fields of engineering: in shipbuilding, in hydraulic engineering when designing locks and weirs, in sanitation and building services. The SMT-FM-04B experimental unit offers typical experiments to study hydrostatic pressure in liquids at rest.

This Apparatus consists of a quadrant assembled to the arm of a scale that swings around an axis. When the quadrant is immersed in the water tank, the force that acts on the flat rectangular front surface exerts a momentum with respect to the supporting axis. The swinging arm is fitted with a tray and an adjustable counter balance. The tank has adjustable supporting legs for levelling. It has a drainage valve. The level reached by the water inside the tank is indicated by a graduated scale.

TECHNICAL SPECIFICATIONS

Specifications:

- Simple construction.
- Easy to operate and understand.
- Clear Transparent PMMA Construction.
- Stand-alone apparatus just needs clean water.
- Investigation of the hydrostatic pressure in fluids at rest.
- Lever arm with different weights.
- Anti-corrasion structure.
- Have adjustable levelling feet.
- Can be used with Base Water supply ESOLS Hydraulic Bench (SMT-FM-100)

Web: http:// www.esolsengineering.com, Email: esolsengineering@gmail.com

Technical Data:

- Water tank:
  - Transparent PMMA.
  - 6.0 L
- Distance between the suspended masses and support point: 300mm
- Area of the section: 0.008m^2
- Total Depth of submerged quadrant: 165mm
- Height of the support point on the quadrant: 100mm
- Weights:
  - 2x 0.5N.
  - 4x 1N.
  - 2x 2N.
  - 1x 2.5N.
- LxWxH: 500x4350x400 mm.
- Weight: approx. 6kg.

Accessories (Included)

- 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 the relationship between hydrostatic force and head of water for a fully and partially submerged vertical and inclined plane body.
- Pressure distribution along an effective area in a liquid at rest.
- Determination of the centre of pressure and centre of area.
- Comparison of actual and theoretical hydrostatic force on a fully or partially submerged plane for any given head of water.
- Determination of the center of pressures with an angle of 90°, partially submerged.
- Determination of the resultant force with an angle of 90°, partially submerged.
- Determination of the center of pressures with an angle of 90° totally submerged.
- Determination of the resultant force with an angle of 90° totally submerged.
- Balance of momentum.

Web: http:// www.esolsengineering.com, Email: esolsengineering@gmail.com