

**Specifications:-**

- **Description:** The present set-up "Properties of Fluids and Hydrostatics Bench" is designed to demonstrate the properties of fluids and their behaviour under hydrostatic conditions i.e. when fluid is at rest. This allows students to develop an understanding and knowledge of a wide range of fundamental principles and techniques of fluid at rest, before studying fluids in motion. A variety of measuring devices is incorporated, either fastened to the back of the bench or free standing. In this set up self contained mobile unit for many experiments in fluid mechanics. Among other experiments it covers: property of fluids, hydrostatic principle and buoyancy/flotation and Archimedes principle.
- **Technical Details**
 - Reservoir tank with hand pump
 - Drain tray with cover and rubber bung , 29-33 mm
 - 2 x Sink covers : Will be provided.
 - Pyrex Measuring Beakers : 800mL and 100mL
 - Triple beam balance with weights: will be provided.
 - Eureka can & Density bottle : will be provided.
 - Header Tank with hook depth gauge will be provided.
 - Capillarity Apparatus : Glass tubes : 1.6 mm, 0.8 mm and 0.4 mm bores
 - Glass Plates : with side clamps Plastic Shims for various separations (0.002"-0.020")
 - Universal Hydrometer : Range 0.70 to 2.00 sub-divided in 0.01 intervals
 - Set of spheres for viscometer experiment
 - Graduated Jars : 0-1000 ml, with "O" rings
 - 50* stainless steel balls, 1/16" outside diameter , 50* stainless steel balls, 1/32" outside diameter
 - 50* stainless steel balls, 1/8" outside diameter 50* stainless steel balls, 5/32" outside diameter
 - Hydrostatic Pressure Apparatus : Comprises counter-balanced precision quadrant, pivoted on knife edges at its centre of arc.
 - Pascal's Tubes : 5 off interconnected glass tubes of varying cross sections and shapes.
 - Pressure Gauge : Bourdon Type (with visible Mechanism and dead weight calibrator).
 - Pressure gauge calibration cylinder with piston weight platform and PVC tube.
 - Slotted cast iron weights : 4 x 1 kg, 2 x 0.5 kg, 1 x 200 g
 - Floating rectangular pontoon with adjustable centre of gravity

Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.

TESCA TECHNOLOGIES PVT. LTD.

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- Consist of a moulded plastic water tank of dimensions 600 x 400x 120 mm
- Rectangular pontoon 360 x 203 x 76mm fitted with a plastic sail
- Sail include five rows of V-slot, 7.5 mm apart and each row at equally-spaced height , 55.5 mm apart
- Working height of sail 240 mm
- Weights : 525 grams (adjustable)
- Trim weight : 2 x small magnets
- Angular tilt of pontoon will be 8° each side of the vertical line, measured by plumb bob and a graduated scale
- Weight of floating assembly : 3.2 Kg
- Centre of pressure tank and balance
- Consist of a clear Perspex quadrant
- Quadrant dimension : Inner radius 100mm, outer Radius 200m, breadth 75mm Moment arm radius 200mm.
- Weight hangers : 2 x 10g (with 100 x 10g weights)
- Water Manometer : Differential Pressure Manometer, U Tube Type
- Fluid Manometer : Differential Pressure Manometer, U Tube Type (with Specific gravity 1.99 manometer fluid)
- Capillary apparatus
- Glass tubes : 1.6 mm, 0.8 mm and 0.4 mm bores
- Glass Plates : with side clamps
- Plastic Shims for various separations (0.002"-0.020")
- Thermometer : Range : -100C to +1000
- Pump : FHP Pump.
- Pipette Tube
- Bilge pump
- 250 ml bottle of extract of barley straw water treatment
- One pint of SAE 30 oil
- 500 ml Blue liquid coloring
- Hoffman type tube clip
- Triple beam balance with weights
- Archimedes' weight
- Magnet
- Surface Torsion balance : Searle's torsion balance with scale and pointer for the determination of the surface tension of liquids.
- Stopwatch
- An ENGLISH instruction manual consisting of experimental procedures, block diagram etc. will be provided along with the Apparatus.
- The whole set-up is well designed and arranged on a rigid structure painted with industrial PU Paint.
- **Experimentation/Learning Objectives**
- To study the operation of:
- Determination of fluid density and specific gravity
- Principle and use of a hydrometer
- Capillarity in tubes and between plates
- Measurement of viscosity by falling sphere method
- Determination of Pascal's law
- Measurement of fluid levels by vernier hook gauge
- Fluid flow head relationship
- Verification of Archimedes principle and demonstration of principle of floatation
- Stability of a floating body and determination of metacentric height
- Measurement of force and centre of pressure on a plane surface
- Operation and calibration of a bourdon pressure gauge
- U-tube manometers with fluids of different viscosity
- **Utilities Required**
- Water Supply: Initial Fill and Floor Drain.
- Floor Area: 1.75 m x 1 m.

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