



Tesca Basic Hydraulic Bench is of volumetric type and has been designed to provide a continuous and controlled supply of water to conduct various experiments using auxiliary modules in typical Fluid Mechanics and Hydraulics Laboratory. The unit is an ideal service unit for conducting student projects. Once filled, no external water supply is required. Water is recycled between the Experiment Module, Measuring Tank, and the Storage Tank by the Centrifugal Pump.

Several experiments in Fluid Mechanics and Hydraulics require a continuous and controlled supply of water. The Basic Hydraulic Bench provides a controlled recirculation water supply to conduct experiments.

The Basic Hydraulic Bench is a very important module and is recommended for all Fluid Mechanics and Hydraulics Laboratories in Educational Institutions. It is a basic module for flow-related experiments using auxiliary modules. Available in fiberglass or stainless steel or mild steel.

A list of common experiments that can be conducted using the Basic

Hydraulic Bench is given below:

1. Impact of a Jet
2. Flow over Weirs
3. Bernoulli's Theorem Demonstration

4. Orifice Discharge
5. Energy Loss in Bends
6. Osborne Reynolds Demonstration
7. Energy Loss in Pipes
8. Hydrostatic Pressure
9. Flow Visualization in Channels
10. Dead Weight Calibrator
11. Metacentric Height
12. Series & Parallel Pumps
13. Centrifugal Pump Characteristics
14. Free and Forced Vortices
15. Water Hammer
16. Pelton Turbine
17. Orifice & Free Jet Flow
18. Flow Meter Demonstration
19. Cavitations Phenomenon Demonstration
20. Laminar Flow Demonstration
21. Radial Flow Turbine
22. Venturi, Bernoulli and Cavitation
23. Pipe Friction Apparatus
24. Equipment for the Study of Porous Beds in Venturi Tubes
25. Flow Channel 1m Length
26. Depression Measurement System (Vacuum Gauge)
27. Axial Flow Turbine
28. Pump Impeller Display Panel

Features:

1. Self-contained and fully portable mobile unit with welded frame.
2. Available in three options: a) Lightweight body made of reinforced fiberglass and corrosion-resistant materials. b) All stainless steel SS304 metal body for long life & c) Mild Steel sheet metal body for an economical price.

Note: Specifications are subject to change.

Tesca Technologies Pvt. Ltd.

IT-2013, Ramchandrapura Industrial Area, Sitapura Extension,
Near Bombay Hospital, Vidhani Circle, Jaipur-302022, Rajasthan, India,
Tel: +91-141-2771791 / 2771792; Email: info@tesca.in, tesca.technologies@gmail.com
Website: www.tescaglobal.com



3. Closed water circuit consisting of Measuring Tank, Storage Tank, and Centrifugal Pump.
4. Control valve to regulate the pump and adjust the flow rate.
5. Workspace on Bench Top has an integrated flow channel for flow measurements using Weirs and is fitted with stepped edges to ensure safe and easy mounting of experiment modules.
6. Suitable pipe connectors are provided in the Bench Top to enable easy change of experiment modules.
7. Graduated and stepped Measuring Tank for both low and high volume flow rates.
8. Level Indicators for water level are provided in the Open Channel and Measuring Tank.
9. A variable area Flow Meter (10-75 liters per minute) is also provided to measure flow rate independently.
10. Stilling baffles are provided to reduce turbulence.
11. Sight tube with scale provided to indicate instantaneous water level.
12. Bull's eye level is provided to ensure proper position of the Bench and accurate reading of levels.
13. Remote Actuator provided to operate the Dump Valve at the base of Measuring Tank
14. Overflow provided in Measuring Tank to avoid flooding.
15. Separate Storage Tank Outlet facility provided to enable the Bench to be used in any hydraulic circuit.
16. Push button starter provided for the centrifugal pump.
17. Power supply includes over-load and under-voltage protection.

Options:

Based on the request by the user, a provision can be made to study the performance of the Centrifugal Pump at various load conditions. The pump is coupled to the Motor Dynamometer with an inverter, digital speed indicator, and the spring balance to measure the pump input. Pressure gauges are provided at the pump inlet and exit to measure the head developed.

Technical Details:

- Pump: Variable speed Centrifugal type, 0.5 KW, Max. Flow rate 100 LPM, 25 m (max.) Head with Control Panel.
- Storage Tank Capacity: 180 liters*.
- Measuring Tank capacity: low flow 10 liters, high flow 50 liters.
- Level of working surface: 1 m above the floor.
- Bench Top dimensions: 1350 mm long X 750 mm wide.
- Open Channel: 750 mm long X 250 mm wide X 170 mm deep.
- Other Accessories (included): Bench leveling screws, Stopwatch, and stain/deposit remover.

Option:

The Storage Tank Capacity can be increased to 250 liters based on the requirements of the user.

Services Required:

Electrical Supply, 220-240 V earthed single-phase, 50 Hz.

Overall Dimensions:

1350 mm X 750 mm X 1100 mm.

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