



### Features:

- Transparent Flow channel for visualization of flow.
- Different weirs & accessories included.
- Demonstration of flow through both Open & Closed channels.

Tesca Flow Channel of Hydraulic Flow Demonstrator is constructed using clear acrylic for visibility and is supported by a floor-standing, metal frame fitted with castors for mobility. The flow channel consists of an inlet tank with overflow and flows stilling arrangement, a rectangular working section, and a discharge tank.

Control valves and adjustable weirs allow the flow conditions to be varied independently at the entry to and exit from the working section. The working section can be flooded to create a closed conduit or operate partially filled as an open channel. The most important feature of this equipment is the adjustable section of the bed which, together with its transition section (ramps), may be raised and lowered using an external actuator while the water is still flowing. This facility affords a striking demonstration of the significance of channel critical depth. It is also used to vary the cross-section for demonstration of the Bernoulli equation in closed conduit flow.

A removable panel in the roof of the working section allows models of typical hydraulic structures to be installed, namely; a Sharp crested weir, Broad crested weir.

Pitot tubes and tappings connected to a multi-tube manometer allow Total and Static heads to be measured and compared at three locations in the working section. The height of the Pitot tubes is adjustable allowing the velocity profile to be determined at any position between the bed and the roof of the working section. Transparent scales allow all-important heights and levels to be measured throughout the working section.

Note: Specifications are subject to change.

### **Tesca Technologies Pvt. Ltd.**

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Detailed Operation & Maintenance Manual is provided along with the trainer.

### **Technical Specifications:**

- A floor-standing flow channel for use with a Hydraulics Bench
- Working section 75 mm wide, 150mm high, and 1100mm long, Can be configured to demonstrate flow in open channels and closed conduits. Clear acrylic sides for good visibility of flow patterns created
- Discharge tank
- A multi-tube manometer connected to Pitot tubes and static tapings at three locations in the working section
- Pitot tubes
- Models of hydraulic structures supplied include Undershot Weir (Sluice gate) at the inlet, Overshot Weir at the outlet, Sharp Crested Weir, Broad Crested Weir

### **Experiment Capabilities:**

#### **Closed conduit flow**

- Application of the Bernoulli and Continuity equations to converging and diverging flow
- Effect of gradual and sudden changes in cross-section (energy losses)
- Using a contraction as a flow measuring device
- Using a Pitot tube to measure velocity/velocity profile

#### **Open channel flow**

- Flow beneath an Undershot Weir (Sluice Gate)
- Flow over Sharp Crested, Broad Crested Weirs
- Using hydraulic structures to measure flow in an open channel
- Effect of changes in upstream and downstream water level
- Characteristics of Hydraulic Jumps, Force and energy conditions in a Hydraulic Jump
- Flow patterns associated with Hydraulic Jumps
- Flow over Drop Structures / Energy Dissipation
- Changes in flow profile in relation to the Froude Number (predicting flow conditions in an open channel)
- Observation of flow patterns associated with the flow around hydraulic structures

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