



Tesca Flow Channel Apparatus is useful to carry out some basic experiments in fluid mechanics related to open channel flows and visualization of flow patterns around immersed bodies. The Tesca Flow Channel Apparatus is required to demonstrate basic principles of fluid mechanics and is important equipment for any Fluid Mechanics and Hydraulics Laboratory of an educational institution.

The apparatus consists of a clear acrylic plastic open flow channel test section for flow visualization. The channel has a rectangular cross section of large depth-to-width ratio to facilitate conducting a variety of experiments. Undershoot and overshoot adjustable weirs are provided at the inlet and exit ends of the channel to control the depth of flow and flow velocity. Water is supplied through a stilling tank and nozzle to ensure clean flow at the inlet of the flow channel with minimum flow disturbances. The discharge from the channel is collected in the volumetric measuring tank of the hydraulic bench and is used to determine the average flow velocity. The dye injection system consisting of a dye reservoir, flow control valve and dye injection needles are supplied to inject dye into the flow stream for the visualization of stream line patterns.

Broad and sharp crested weirs and models of various bodies such as aerofoil, cylinder and ship are supplied with the apparatus to enable several open channel flow experiments and flow visualization experiments. The apparatus has adjustable feet for leveling. The 32096 Hydraulic Bench or any other standard hydraulic bench models can be used to supply water.

**Option :**

Computer based learning software is included to enable students to understand and conduct experiments, tabulate results and plot graphs. Flow Channels of larger dimensions and having different features such as tilting floor and advanced instrumentation systems required for research and education can be supplied on request by the user. The Tesca Flow Channel Apparatus is an important experimental set-up for any Fluid Mechanics and Hydraulics Laboratory of an educational institution

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

### Experiment :

1. Study of basic open channel flows with variable depth of flow.
2. Calculation of Froude number and similarity of flows.
3. Study of uniform flow, gradually varied flow and rapidly varied flow and Froude number correlations.
4. Study of flow over different types of weirs – undershoot and overshoot weirs, broad and sharp crested weirs.
5. Study of flow under a sluice gate.
6. Visualization of streamline patterns around aerofoil, cylinder, ship model, hump etc.

### Important Specifications:

1. Open flow channel made of clear acrylic plastic, 20mm width, 160mm depth, and 625mm length.
2. Dye reservoir, capacity: 0.5 liters
3. Dye injection needles, 5 Nos.
4. Models, 8 Nos.
  - (a) broad crested weir
  - (b) sharp crested weir
  - (c) symmetrical aerofoil
  - (d) non-symmetrical aerofoil
  - (e) cylinder, 15mm diameter
  - (f) cylinder, 30mm diameter
  - (g) ship model and
  - (h) hump
5. Spirit level.
6. Computer based learning software (Optional).

### Option :

1. A self contained unit of Flow Channel Apparatus mounted on a mobile platform with a flow controlled closed circuit water circulation unit consisting of a centrifugal pump, flow meter, corrosion resistant sheet metal measuring tank and a sump tank will be supplied on request.
2. Depth gauge to measure depth of flow in the flow channel can be supplied on request.
3. Different models as per the requirement of the user can be supplied on request.
4. Computer based learning software (Optional).

### Services Required:

1. Water supply and drainage.
2. Electrical supply, 240 V, single-phase, 50 Hz.

### Overall Dimensions

Height: 0.80m, Width: 0.65m, Length: 1.0m.

### Instruction Materials

The manual describing the theoretical and practical aspects of the apparatus, operation, analysis of results, and sample of results will be supplied with the equipment.

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