

The Flow Channel introduces students to the characteristics of flow in an open channel at an elementary level.

- ▶ Demonstrating basic phenomena associated with open channel flow
- ▶ Visualisation of flow patterns over or around an immersed object



Description

The channel consists of a clear acrylic working section of large depth-to-width ratio incorporating undershot and overshot weirs at the inlet and discharge ends respectively. Water is fed to the streamlined channel entry via a stilling tank to reduce turbulence. Water discharging from the channel is collected in the volumetric tank of the hydraulics bench and returned to the sump for recirculation.

A dye injection system incorporated at the inlet to the channel enables flow visualisation in conjunction with a graticule on the rear face of the channel.

Models supplied with the channel include broad and sharp-crested weirs, large and small-diameter cylinders and symmetrical and asymmetrical aerofoils. These in conjunction with the inlet and discharge weirs, permit a varied range of open channel and flow visualisation demonstrations.

Technical specifications

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| Diameter of test pipe | 3.0mm |
| Length of test pipe | 760mm |
| Distance between pressure tapping points | 500mm |
| Range of mercury manometer | 500mm |
| Range of water manometer | 500mm |
| Measuring cylinder capacity | 1000ml |

Requires Hydraulics Bench. Service unit F1-10/F1-10-2

Experimental content

- ▶ To visualise flow patterns around immersed objects in an open channel
- ▶ Demonstration of flow phenomena in an open channel
- ▶ Undershot and Overshot weirs
- ▶ Broad Crested and Sharp Crested Weirs
- ▶ Discharge beneath a sluice gate
- ▶ Creation of a hydraulic jump downstream of a sluice gate and weir
- ▶ Drowning of a sluice gate and weir
- ▶ Flow over a broad crested and sharp edged weir
- ▶ Supercritical (fast) and sub-critical (slow) flows over the weir

Overall dimensions

| | |
|--------|--------|
| Length | 0.865m |
| Width | 0.33m |
| Height | 0.50m |

Ordering codes

- ▶ F1-19