Flow Channel - F1-19

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.

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

TECHNICAL DETAILS

Dye injection needles	5
Dye reservoir capacity	0.45l
Length of channel	615mm
Width of channel	15mm
Depth of channel	150mm
Models	broad-crested weir
	narrow-crested weir
	symmetrical aerofoil
	asymmetrical aerofoil
	small cylinder
	large cylinder

Requires Hydraulics Bench Service unit F1-10

Overall dimensions

Length	0.865m
Width	0.33m
Height	0.50m

Ordering codes

- F1-19

UK office - email: sales@armfield.co.uk tel: +44 (0) 1425 478781 (for ROW)
USA office - email: info@armfield.inc tel: +1 (609) 208-2800 (USA only)

Issue: 3
URL: http://www.armfield.co.uk/f1
Applications: ChE ME CE IP

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