armfield

F SERIES

SOFTWARE INCLUDED WITH ALL F1-10 BENCH'S AS STANDARD

F SERIES: BASIC FLUID MECHANICS
Complete Fluid Mechanics Laboratory – F1

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

F1-19: Mounted on top of the hydraulics bench

F1-19: Dye injection system

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

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

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: 2
URL: http://www.armfield.co.uk/f1
Applications: ChE ME CE IP

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