



REQUIRES F1-10

F1-18 Energy Losses in Pipes

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This equipment enables the pressure drop of water passing through a hydraulically smooth circular pipe to be measured in detail and the pipe friction equation to be verified.

DEMONSTRATION CAPABILITIES

- > Investigating the variation of friction head along a circular pipe with the mean flow velocity in the pipe
- > Investigating the effects of laminar and turbulent flow regimes

DESCRIPTION

The Energy Losses in Pipes accessory consists of a test pipe, orientated vertically on the side of the equipment, which may be fed directly from the Hydraulics Bench supply or, alternatively, from the integral constant head tank.

These sources provide high or low flow rates which may be controlled by a valve at the discharge end of the test pipe. Head loss between two tapping points in the test pipe is measured using two manometers, a water over mercury manometer for large pressure differentials and a pressurised water manometer for small pressure differentials.

Excess water discharging from the constant head tank is returned to the sump tank of the Hydraulics Bench. Adjustable feet permit levelling.

Mercury not supplied.

A Digital Pressure Meter: H12-8 is available as an alternative to Mercury manometers - for more information view online: www.armfield.co.uk/h12-8

TECHNICAL DETAILS

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



REQUIRES F1-10

F1-19 Flow Channel

F1-19 FLOW CHANNEL

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

DEMONSTRATION & VISUALISATION CAPABILITIES

- > Demonstrating basic phenomena associated with open channel flow
- > Visualisation of flow patterns over or around immersed objects

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 permits 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, which in conjunction with the inlet and discharge weirs, permit a varied range of open channel and flow visualisation demonstrations.

Adjustable feet permit levelling

TECHNICAL DETAILS

Dye injection needles:	5
Dye reservoir capacity:	0.45 litres
Width of channel:	15mm
Length of channel:	615mm
Depth of channel:	150mm
Models:	<ul style="list-style-type: none"> – broad crested weir – narrow crested weir – symmetrical aerofoil – asymmetrical aerofoil – small cylinder – large cylinder

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