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

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



## **Energy Losses in Bends and Fittings - F1-22**

This accessory permits losses in different bends and fittings, sudden contraction, sudden enlargement and a typical control valve to be demonstrated.

- Mitre bend 90° elbow Short and long bends
- ► Sudden contraction and sudden enlargement
- Fully instrumented with upstream and downstream pressure tappings
- A bank of 12 water manometer tubes mounted on the framework for visualisation of the pressure drop profiles
- Differential Pressure Gauge for direction reading of losses through the gate valve



#### **Experimental content**

Measuring the losses in the devices related to flow rate and calculating loss coefficients related to velocity head including:

- Short bend
- Long bend
- Elbow bend
- Mitre bend
- Area enlargement
- Area contraction
- ► Gate valve fitting
- Comparing the pressure drop across each device

#### Description

The equipment is mounted on a free-standing framework which supports the test pipework and instrumentation. The following typical pipe fittings are incorporated for study: mitre bend, 90° elbow, swept bends (large and small radius), sudden contraction and sudden enlargement.

All are instrumented with upstream and downstream pressure tappings. These tappings are connected to a bank of 12 water manometer tubes mounted on the framework. Pressurisation of the manometers is facilitated by a hand pump. A gate valve is used to control the flow rate.

A separate gate valve is instrumented with upstream and downstream pressure tappings which are connected to a differential gauge on the edge of the framework. The unit stands on the working top of the hydraulics bench which is also used as the source of water supply.

#### **Overall dimensions**

Length	0.63m	
Width	0.33m	
Height	0.83m	

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)



#### **Technical specifications**

Pipe diameter	19.48mm
Differential pressure gauge	0-3 bar
Enlargement diameter	26.2mm
Contraction diameter	19.48mm
Fittings	short bend
	long bend
	elbow bend
	45° mitre bend
	enlargement
	contraction
	gate valve
Manometer range	0-440mm
Number of manometer tubes	12
Differential manometers	6
Requires Hydraulics Bench Service unit F1-10/F1-10-2	

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

#### Ordering codes

► F1-22

Issue: 2 Applications					
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