

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 tapings
- ▶ 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 tapings. These tapings 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 tapings 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



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	

Ordering codes

▶ F1-22