

F SERIES

This accessory is designed to introduce students to three basic types of flow meter:

- ▶ Venturi meter
- ▶ Variable area flowmeter (Rotameter)
- ▶ Orifice plate
- ▶ 8 pressure tapings are connected and displayed on the manometer bank to visualise pressure profiles

Experimental content

- ▶ To investigate the operation and characteristics of a Venturi meter, variable area meter and orifice plate including accuracy and energy losses
- ▶ Comparison of pressure drops across each flow measurement device
- ▶ Calibrating each flow meter using the volumetric measuring tank of the bench
- ▶ Application of the Bernoulli equation for incompressible fluids

Description

The equipment consists of a Venturi meter, variable area meter and orifice plate installed in a series configuration to permit direct comparison.

A flow control valve permits variation of the flow rate through the circuit. Pressure tapings are incorporated so that the head loss characteristics of each flow meter may be measured. These tapings are connected to an eight-tube manometer bank incorporating a manifold with an air bleed valve.

Pressurisation of the manometers is facilitated by a hand pump.

The circuit and manometer are attached to a support framework, which stands on the working top of the Hydraulics Bench.

The bench is used as the source of water supply and for volumetrically calibrating each flow meter.

Technical specifications

| | |
|--|---------------|
| Manometer range | 0-400mm |
| Number of manometer tubes | 8 |
| Orifice plate diameter | 20mm |
| Variable area meter | 2-20 l/min |
| Venturi dimensions | |
| Throat diameter | 15mm |
| Upstream pipe diameter | 31.75mm |
| Upstream taper | 21° inclusive |
| Downstream taper | 14° inclusive |
| Requires Hydraulics Bench Service unit F1-10/F1-10-2 | |

Overall dimensions

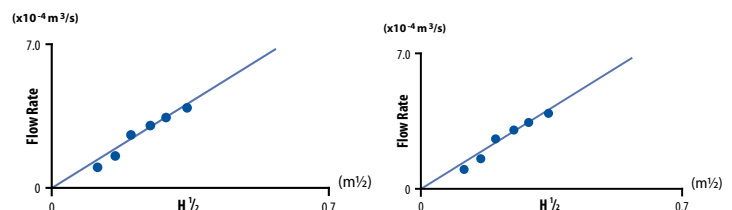
| | |
|--------|-------|
| Length | 0.68m |
| Width | 0.33m |
| Height | 0.83m |

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Flow Meter Demonstration - F1-21



Ordering codes

- ▶ F1-21

Issue: 2

URL: <http://www.armfield.co.uk/f1>

Applications

ChE ME CE IP

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