armfield

F SERIES

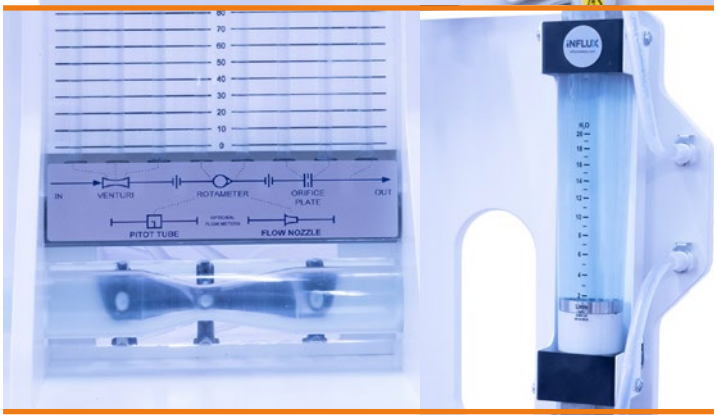
SOFTWARE INCLUDED WITH ALL F1-10 BENCH'S AS STANDARD

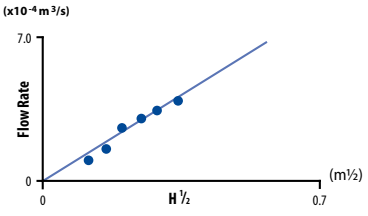
F SERIES: BASIC FLUID MECHANICS
Complete Fluid Mechanics Laboratory – F1

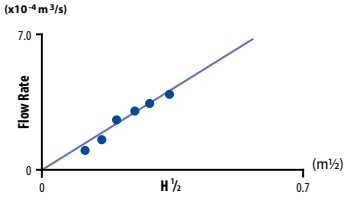
Flow Meter Demonstration - F1-21 MKII

This accessory is designed to introduce students to three basic types of flow meter: **Venturi meter**
Variable area flowmeter (Rotameter)
Orifice plate

- 8 pressure tappings 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 flowmeter 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 hydraulics bench
- Application of the Bernoulli equation for incompressible fluids

Description

The equipment consists of a Venturi meter, variable area flowmeter 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 tappings are incorporated so that the head loss characteristics of each flow meter may be measured. These tappings 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 hydraulics 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	17mm
Variable area meter	2-20 l/min
Venturi dimensions	
Throat diameter	14mm
Upstream pipe diameter	26mm
Upstream taper	21° inclusive
Downstream taper	9° inclusive

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

Overall dimensions

Length	0.68m
Width	0.33m
Height	0.83m

Ordering codes

- F1-21

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