

Osborne Reynolds' Demonstration - F1-20

This item is intended to reproduce the classic experiments conducted by Professor Osborne Reynolds concerning the nature of laminar and turbulent flow.

$$Re = \frac{\rho u L}{\mu} = \frac{u L}{\nu}$$



Laminar flow



Transitional flow



Turbulent flow



Experimental content

- ▶ Reproducing the classic experiments conducted by Professor Osborne Reynolds concerning fluid flow condition
- ▶ Observing the laminar, transitional, turbulent flow and velocity profile

Description

The equipment operates in a vertical orientation. A header tank containing stilling media provides a constant head of water through a bellmouth entry to the flow visualisation pipe.

Flow through this pipe is regulated using a control valve at the discharge end. The flow rate of water through the pipe can be read on the digital flow meter or can be measured using the volumetric tank (or measuring cylinder) of the hydraulics bench. Velocity of the water can therefore be determined to enable calculation of Reynolds' number.

The equipment uses a similar dye injection technique to that of Reynolds' original apparatus to enable observation of flow conditions.

Technical specifications

Test pipe diameter	10.0mm (precision bore glass)
Length of test pipe	700mm
Dye reservoir capacity	0.45l
Requires Hydraulics Bench Service unit F1-10/F1-10-2	

Overall dimensions

Length	0.50m
Width	0.33m
Height	1.24m

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Ordering codes

- ▶ F1-20

Issue: 3

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

Applications

ChE ME CE IP

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