

Bernoulli's Theorem Demonstration - F1-15-MKII

This accessory illustrates the circumstances to which Bernoulli's Theorem may be applied.

It also explains why in other circumstances the theorem gives an inadequate description of the fluid behaviour.



F1-15-MKII: Venturi tube



F1-15-MKII: Pump for pressurising the system

Experimental content

- ▶ To investigate the validity of the Bernoulli equation when applied to the steady flow of water in a converging, or, a diverging duct
- ▶ Conservation of energy convergent/divergent pipe flow
- ▶ Effect of friction loss on Bernoulli equation
- ▶ Recording the pressure curve in a Venturi nozzle
- ▶ Recording the velocity curve in a Venturi nozzle
- ▶ Determining the flow coefficient

Description

The test section consists of a classical Venturi machined in clear acrylic.

A series of wall tapings enable measurement of the static pressure distribution along the converging and diverging duct. A total head tube is provided to traverse along the centre line of the test section.

These tapings are connected to a manometer bank incorporating a manifold with an air bleed valve.

Pressurisation of the manometers is facilitated by a hand pump. The test section is arranged so that the characteristics of flow through both a converging and diverging section can be studied.

Water is fed through a hose connector and is controlled by a flow regulator valve at the outlet of the test section.

The Venturi can be demonstrated as a means of flow measurement and the discharge coefficient can be determined.

Technical specifications (Requires Hydraulics Bench Service unit F1-10/F1-10-2)

Manometer range	0-400mm
Number of manometer tubes	11
Throat diameter	14.0mm
Upstream diameter	26.0mm
Upstream taper	21°
Downstream taper	9°

Overall dimensions

Length	0.80m
Width	0.40m
Height	0.65m

Ordering codes

- ▶ F1-15-MKII