armfield

SERIES

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

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

Cavitation Demonstration - F1-28

F1-28 Vacuum gauge

This equipment demonstrates to students visually, audibly and numerically the phenomenon of cavitation and its association with the vapour pressure of a liquid.

Experimental content

- To demonstrate the appearance and sound of cavitation in a hydraulic system
- To demonstrate the conditions for cavitation to occur (liquid at its vapour pressure)
- To observe the difference between air release from the water and true cavitation
- To show how cavitation can be prevented by raising the static pressure of a liquid above its vapour pressure
- Verification of Bernoulli's equation
- Comparison of theoretical and actual pressure at cavitation conditions

Description

This accessory consists of a circular Venturi-shaped test section manufactured from clear acrylic to enable visualisation inside the section.

As the flow of water increases, the pressure at the throat falls in accordance with the Bernoulli equation until a limit is reached corresponding to the vapour pressure of the liquid. At this low pressure small bubbles of vapour form then collapse violently as the pressure rises again downstream.

This process is called cavitation.

Bourdon gauges indicate the pressure upstream of the contraction, inside the throat and downstream of the expansion in the test section. Flow control valves upstream and downstream of the test section enable the flow and pressure to be adjusted, enabling cavitation to be clearly demonstrated.

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Technical specifications Upstream pressure gauge Diameter 63mm Range 0 to 2 bar Throat vacuum gauge 100mm Diameter -1 to 0 bar Range Downstream pressure gauge Diameter 63mm 0 to 1 bar Range Requires Hydraulics Bench Service unit F1-10/F1-10-2

Overall dimensions

Length	0.55m
Width	0.23m
Height	0.19m

Ordering codes

► F1-28

Issue: 2 Applications					
URL: http://www.armfield.co.uk/f1	ChE	ME	CE	IP	
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