F SERIES

Fluid properties apparatus - F1-30

This apparatus provides an introduction to the fundamental properties of liquids that affect their behaviour in practical applications.

F1-30 Fluid properties components

Experimental content

- Measuring density and relative density (specific gravity) of a liquid using a universal hydrometer
- Measuring density and relative density (specific gravity) of a liquid using a pycnometer (density bottle)
- Measuring density and relative density of solid objects or granular material using a Pycnometer
- Measuring viscosity of various liquids at atmospheric temperature and pressure using a Falling Sphere Viscometer.
- Measuring the effect of capillary elevation inside capillary tubes
- Demonstrate the effect of capillary elevation between two flat glass plates due to surface tension in a liquid.
- Verifying Archimedes principle using a brass bucket & cylinder with a lever balance
- Measuring atmospheric pressure using an aneroid barometer

Description

A clear understanding about the physical properties of fluids is essential before studying the behaviour of fluids in static or dynamic applications.

This apparatus introduces students to the following properties of fluids:

- Density and relative density (specific gravity)
- Viscosity
- Capillarity – capillary elevation between flat plates and in circular tubes
- Buoyancy (Archimedes principle)
- Atmospheric pressure

The apparatus consists of a collection of components that demonstrate individual fluid properties. The components are stored on a common support frame manufactured from PVC with circular spirit level and adjustable feet for levelling.

The apparatus is designed to stand on a suitable benchtop where some of the components can be operated independently from the support frame.

A free-standing dual-scale lever balance is also supplied to support several of the demonstrations.

Technical specifications

The following components are included
2 hydrometer jars (clipped to stand)
1 universal hydrometer (in protective housing)
2 falling-sphere viscometer tubes (clipped to stand)
1 plastic storage box containing steel spheres
1 spirit-filled glass thermometer (in protective housing)
1 direct-reading aneroid barometer (fixed to stand)
1 parallel-plate capillary apparatus
1 capillary tube apparatus with six tubes of varying size
1 Archimedes apparatus comprising displacement vessel, machined bucket & matching cylinder
1 50ml density bottle (Pycnometer)
1 250ml plastic measuring cylinder
1 600ml glass beaker
1 dual-scale lever balance, adapted for use with the Archimedes apparatus

Overall dimensions	
Length	0.60m
Width	0.16m
Height	0.50m

Ordering codes

- F1-30

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