

## ≡ VISCOSITY AND PARTICLE DRAG

### H410

Self-standing, simple falling sphere viscometer that demonstrates the drag coefficient of different sized particles (spheres) and the viscosity of liquids.



### KEY FEATURES

- Falling sphere viscometer for experiments in drag coefficient and fluid viscosity
- Two transparent glass tubes allows students to simultaneously compare different fluids, without requiring draining and refilling
- Safe, low-voltage backlighting so students can see the falling test spheres through dark fluids
- Includes test spheres of different sizes and densities to help match a range of test fluids
- Unique valve exit system allows students to recover test spheres with minimal fluid loss
- Includes stopwatch and timing marks for accurate results

### LEARNING OUTCOMES

- Determination of the viscosity of different fluids
- Determination of the drag coefficient of various spheres
- Visual demonstration of viscosity, simultaneously on two different fluids

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## DESCRIPTION

The Viscosity and Particle Drag apparatus is a simple falling-sphere viscometer. The self-standing unit holds two glass tubes filled with the test fluids, for comparisons and to minimise draining and refilling of the fluids after experimentation. The back plate has a low-voltage backlight so students can easily see the test spheres through the fluid.

Students fill the two tubes with their chosen test fluid, then select a sphere of the correct density and size for the fluid. They drop the sphere into the test fluid at the top of the glass tube. They then use a stopwatch (included) to measure the time taken for the sphere to fall a set distance down the tube.

When the test sphere reaches the bottom of the tube, it enters a valve that the students turns, dropping the sphere into a collection vial for recovery. The valve system minimises the fluid loss from the tube and helps when draining the tube after the tests are complete.

Students may also make their own use shapes to test in the unit. The shapes must fit through the valve at the base (maximum 8 mm in any single dimension).

Suitable test fluids include water, thin machine oil, castor oil and motor oil. The apparatus can be used with any fluid that can be safely handled and is chemically compatible with the wetted parts of the equipment - glass and PTFE.

**NOTE:** TecEquipment does not supply test fluids with the equipment.



## STANDARD FEATURES

- Supplied with a comprehensive user guide
- Five-year warranty
- Manufactured in accordance with the latest European Union directives
- An ISO 9001 certified company

## ESSENTIAL SERVICES

### ELECTRICAL SUPPLY: (SPECIFY ON ORDER)

Single-phase 90-250 VAC, 50/60 Hz 0.5A

## OPERATING CONDITIONS

TecEquipment is committed to a programme of continuous improvement; hence we reserve the right to alter the design and product specification without prior notice.

### OPERATING ENVIRONMENT:

Laboratory

### STORAGE TEMPERATURE RANGE:

-25°C to +55°C (when packed for transport)

### OPERATING TEMPERATURE RANGE:

+5°C to +40°C

### OPERATING RELATIVE HUMIDITY RANGE:

80% at temperatures < 31°C decreasing linearly to 50% at 40°C

## SPECIFICATIONS

### NETT DIMENSIONS WHEN ASSEMBLED WITH COLLECTION TRAY:

1650 mm high (nominal, adjustable feet) x 314 mm wide x 511 mm front to back

### NETT WEIGHT:

18 kg

### PACKED DIMENSIONS AND WEIGHT:

0.47 m<sup>3</sup> and 33 kg

### TUBE DETAILS:

Internal diameter – 51 mm

Outside diameter – 56 mm

Length (test section) – 1300 mm

Length overall (inc. valve and collection vial) – 1500 mm

Fitted with PTFE valve and glass sample collection vial

### TEST SPHERES (5 OFF EACH SIZE):

- Aluminium 5/32", 5 mm and 6 mm
- Nylon 3 mm and 4 mm
- Delrin 5 mm, 6 mm, 7 mm and 8 mm
- Stainless steel 1.587 mm, 2 mm, 3 mm, 3.5 mm, 4 mm, 4.5 mm, 5 mm, 6 mm, 7 mm, 7.5 mm and 8 mm