H410

Viscosity and Particle Drag

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

TecQuipment Ltd, Bonsall Street, Long Eaton, Nottingham NG10 2AN, UK

T +44 115 972 2611 • **F** +44 115 973 1520 • **E** info@tecquipment.com • **W** www.tecquipment.com

TecQuipment

H410 Viscosity and Particle Drag

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 minismise 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: TecQuipment do 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:

Single-phase 100 VAC to 240 VAC, 1 A, 50 Hz to 60 Hz with earth.

Operating Conditions

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

TecQuipment Ltd, Bonsall Street, Long Eaton, Nottingham NG10 2AN, UK

T +44 115 972 2611 • F +44 115 973 1520 • E info@tecquipment.com • W www.tecquipment.com

TecQuipment

H410 Viscosity and Particle Drag

Specification

Nett dimensions when assembled with collection tray:

1540 mm high x 410 mm wide x 330 mm front to back

Nett weight:

18 kg

Packed dimensions and weight:

0.47 m^3 and 33 kg

Tube details:

Internal diameter – 51 mm

Outside diameter – 56 mm

Length (test section) – 1300 mm

Length overall (inc. valve & 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

TecQuipment Ltd, Bonsall Street, Long Eaton, Nottingham NG10 2AN, UK

T +44 115 972 2611 • F +44 115 973 1520 • E info@tecquipment.com • W www.tecquipment.com

TecQuipment