SM1006 Creep Machine

Bench-mounted machine which demonstrates the phenomenon of creep under different conditions and in different materials

Works with VDAS®

Screenshot of the optional VDAS® software

- Ideal for student use and classroom demonstrations
- Demonstrates the three phases of creep
- Demonstrates effect of temperature on creep
- Compact and easily stored
- Supplied with weights and test specimens
- Inexpensive specimens readily available in lead and plastics
- Completely self-contained – needs no other parts

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TecQuipment

SM1006 Creep Machine

Description

This simple machine uses specimens of lead and different plastics which creep significantly at room temperature and under low loads.

Its main part is a simple lever (load beam) with a mechanical advantage of 8:1. The load beam gives a steady and uniform tensile load. A digital indicator measures the extension (creep) of the specimen under load. To ensure correct loading of the specimen, the load beam has a ball-bearing pivot.

To apply a load, students add weights to a weight hanger and measure time and the creep. For effect-of-temperature tests, the student freezes or heats a cool-pack and places it next to the specimen. They then fit the transparent enclosure to preserve the temperature around the specimen during the test.

Students may record and plot results by hand, using a timer (not supplied) and the readings from the digital indicator and thermometer. Alternatively, the student can use TecQuipment's optional Versatile Data Acquisition System (VDAS®) to capture the data, plot charts and export data.

A user guide is supplied with the Creep Machine. The guide includes full details of the equipment, detailed experiment procedures, theory and results.

For quick and reliable tests, TecQuipment can supply VDAS® which gives accurate real-time data capture, monitoring and display, calculation and charting of all important readings on a computer (computer not included).

For connection to VDAS® the Creep Machine includes a thermocouple with in-line transmitter, and a lead to connect the digital indicator to VDAS®.

Standard Features

- Supplied with comprehensive user guide
- Five-year warranty
- Manufactured in accordance with the latest European Union directives

Recommended Ancillaries

- Bench-mounted version of the Versatile Data Acquisition System (VDAS-B)
- Extra specimens:

  CP1010 Lead to BS1178 (1969)
  CP1020 Polypropylene
  CP1025 Nylon 66 unfilled
  CP1030 Unplasticised PVC

Experiments

An extensive range of experiments may be carried out with this apparatus, including:

- The normal breaking load of a specimen over a fixed time
- Relationship between breaking load and time for lead specimens
- Time extension curves to show the three phases of creep (primary, secondary and tertiary)
- The effect of temperature on the creep rate of specimens
- Creep recovery

Essential Services

None needed for ambient temperature tests. For 'effect of temperature tests', the cool pack must to be frozen in the ice making compartment of a refrigerator and heated in a pan of hot water.

Bench space needed:
570 mm x 220 mm

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

Sound Levels

Less than 70 dB(A)

Specifications

Dimensions: 570 mm x 430 mm x 220 mm

Nett weight: 7.5 kg

Approximate packed volume and weight: 0.1 m^3; 15 kg

Temperature: Displayed by laboratory-standard thermometer or thermocouple (SM1000CK) and VDAS®

Creep: Measured by digital indicator, with output for VDAS®

Specimens (supplied):
10 x CP1010 Lead
10 x CP1020 Polypropylene

Test weights (supplied):
3 x 500 g
2 x 200 g
1 x 100 g

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