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Units
7.-Mechanics & Materials

DESCRIPTION

Creep is the deformation produced in a material subjected to a constant force at a constant temperature.

The EEFCR unit for the creep testing is mounted on a structure of aluminium profiles which a steel panel painted in epoxy is supported on.

The Creep Testing Unit is designed to carry out practices on specimens of plastic materials. Due to the dependence on the temperature in this type of tests, there is a temperature conditioning box where the experiments are carried out. It is made of acrylic, which allows to observe the practices development. The conditioning box is divided in two sections: the first has the placement for an isotherm bag that allows heat or cold the inside of the box, and the second one is for the placement of the specimens. Inside it, there is also an alcohol thermometer to measure the working temperature.

To carry out a creep experiment a constant load of tension must be applied to the specimen. The EEFCR unit has a load arm over which a hook for weights is hung on an end. This load arm multiplies the load applied to the specimen. The student will be able to apply loads by adding the weights supplied. The reaction will be the force applied to the specimen.

The unit has a dial indicator to measure the specimen elongation in a continuous way. The dial indicator measures the arm fall to the horizontal and the specimen elongation is obtained by a simple trigonometric relation.



ISO 9001:2000
Certificate of Approval



European Union Certificate



Certificates ISO 14001: 2004 and
ECO-Management and Audit Scheme
(environmental management)



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SPECIFICATIONS

Bench-top unit.

Anodized aluminium structure and panel in painted steel (epoxy paint).

Main metallic elements in stainless steel.

Diagram in the front panel with similar distribution to the elements in the real unit.

Temperature conditioning box made of acrylic. Here, the adequate temperature conditions to carry out the experiment are created. Inside it, the specimen which will be experimented is located. To reach the temperature, an isotherm bag will be used. To know the experiment conditions, there is a thermometer at the upper part of the box.

Load arm. It is a stainless steel beam on which the loads are applied to the specimen. It pivots on a shaft inserted in the support column. Tensile stress range: 0-35 N/mm².

Support screw for supporting the load arm before starting the experiment.

Clamps. They are into the space to fasten the specimens.

Allen key, of 3 mm, to adjust the dial indicator.

A dial indicator of 10 mm of measurement. It measures the elongation of the specimen which is under the load and temperature concrete conditions.

The specimens are flat type, made in different plastic materials. They have a section of 5 mm x 2 mm to make easier the experiments. They are made of PVC and Polypropylene.

Set of weights and support hook, composed of:

Support hook of 672 gr.

1 Weight of 1000 gr.

2 Weights of 500 gr.

2 Weights of 200 gr.

1 Weight of 100 gr.

Manuals: This unit is supplied with the following manuals: Required Services, Assembly and Installation, Starting-up, Safety, Maintenance & Practices Manuals.

EXERCISES AND PRACTICAL POSSIBILITIES

Some Practical Possibilities of the Unit:

- 1.- Experimental determination of the creep limit of different plastic materials.
- 2.- Experimental determination of the relation between the deformation caused by the creep according to the time on plastic specimens.
- 3.- Determination of the temperature effect in the creep behaviour of a plastic material.
- 4.- Demonstration of the three phases of the creep.

DIMENSIONS & WEIGHT

-Dimensions: 700 x 350 x 600 mm. approx.

-Weight: 25 Kg. approx.

*Specifications subject to change without previous notice, due to the convenience of improvements of the product.



C/ Del Agua, 14. Polígono Industrial San José de Valderas.
28918 LEGANÉS. (Madrid). SPAIN.
Phone: 34-91-6199363 FAX: 34-91-6198647
E-mail: edibon@edibon.com WEB site: www.edibon.com

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