EB 18 Automatic Creep & Stress Relaxation and Tester

System with three test stations for testing of stress relaxation or creep in compression or tension, according to ISO 3384 and ISO 899-1.. Load cell 2000 N, PT 100 sensors and displacement sensors are included.

Technical details:

General

The system works with servomotors and load cells to apply the load. The load in MPa or N is set in the software and the computer instructs the closed loop circuit of the servomotor and load cell amplifier to keep the set load. This means that the load is kept even if the computer fails.
The unit is based on an Elastocon ageing oven meeting the ageing requirements in ISO 188 and IEC 60811 with low air speed and 8 – 20 air exchanges per hour.
The temperature of the oven can be set from the software and the temperature is recorded and shows on the graph.
The software will store material and test data together with the time to break. The software will also plot the load curves from each test station and the curve will show if the break is brittle or ductile. When tests are finished plots can be made.
The graphs can be exported from the software for import in e.g. Excel.
The software has possibilities to run cyclic load tests as well as load ramps and temperature ramps.

Electrical

The system is connected to 220- 240 VAC, 10 A

Certifying

The system will comply with the European Machine directive, the EMC directive and the Low voltage directive.

Installation, testing and start up

We propose for three days of installation, including the training of operators.

Maintenance and calibration

The machine is calibrated at delivery and instructions are included in the manual.

Safety

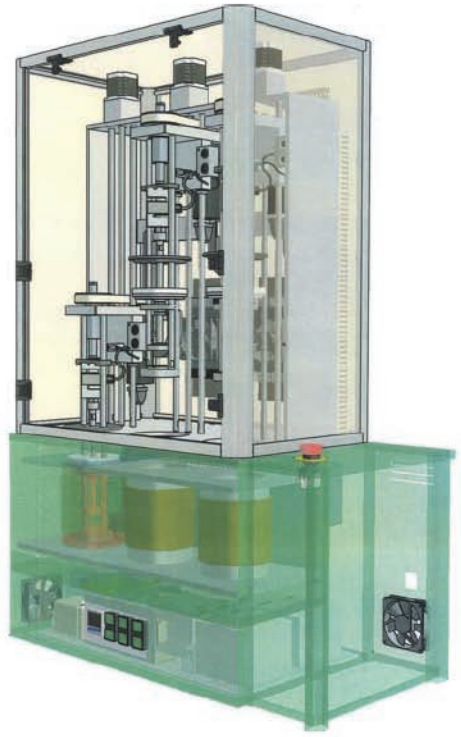
The rigs can not move unless the doors to the hood are closed. An emergency button is also included to stop the movements.

Documentation

The manual includes documentation for installation and running the system, with description of the software and hardware, with drawings.

Certifying

The system will comply with the European Machine directive, the EMC directive and the Low voltage directive.



Technical data

One complete 3-test station system

The complete system is based on a modified Elastocon cell ageing oven

Ext. sizes, w x d x h:	about 1 300 x 500 x 1 250 mm Bench standing
Int. size cells, dia:	100 mm
Material inside:	stainless steel and aluminium
Material outside:	powder painted steel
Temperature range:	40 to 200 °C
Temperature accuracy:	±0,5 °C up to 200 °C

The ovens perform well inside the apparatus requirements in ISO 188, IEC 811 and other equivalent ageing standards.
Special design with controlled air exchange rate and low air speed.
The casing consists of steel, painted with epoxy powder paint in blue green colour.
Temperature controller with 0,1°C set point, can be set from the computer.
Solid-state relay for safe control.
Temperature indicator with sensor in the test rig.
Adjustable over and under temperature limits with alarm.
Fixed over temperature fuse.

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The air speed is low and is dependent on the air exchange rate only, as specified in ISO 188 method A and IEC 811.
Cooling channels in the casing for low surface temperature.
Temperature controlled cooling fan for the electronics cabinet.
Indication of power failure.
Run-time meter.
Built in computer.

The Test Stations

The load is applied by a load cell – amplifier system with a PID control function.
The digital encoder in the motor can measure the elongation for compression, flexure tests and tension creep tests with strip specimen. For dumbbell specimen a high temperature extensometer can be used.
The load cell amplifier and the motor control are connected in a closed loop control, which works even without the computer. The computer sets the set point of the load.

Materials:	stainless steel, aluminium, surface treated or painted steel
Load range:	0 – 2 kN (alternatively 1 kN, 500 N, 100 N)
Load accuracy:	< 0,1 %
Movement:	50 mm
Test speed:	up to 500 mm / min
Motor system:	AC-servo
Deflection accuracy:	<± 0,003 mm (measured with the motor encoder)

Grips

For tension up to 50 mm long samples (between grips)

Software and computer

The software controls the application of load to each test station and can calculate the load from specimen dimensions and MPa wanted.
The software records the specimen data given and shows graphs of 1. temperature, 2. load, 3. deflection, 4. creep strain, 5. creep increment and 6. Creep index, all against time and time to failure.
Type of failure and other comments are entered manually when the test is finished.

Computer

Built in Industrial computer, running WIN XPP with keyboard, mouse and a 17 “ flat TFT monitor.

Force, temperature and displacement are accredited calibrated before delivery.

The instrument conforms to the European LVD, Low Voltage directive and the EMC directive.