Elastocon®

Testing with precision

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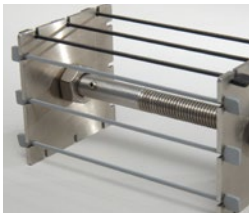
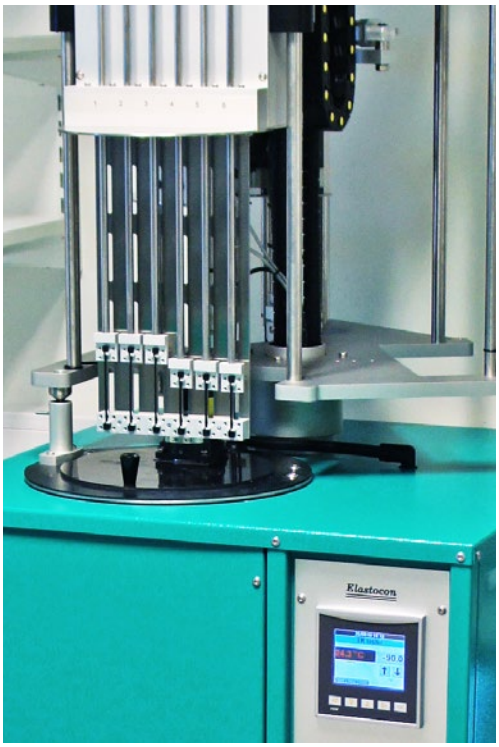
SWEDAC ACKREDITERING
Ackred. nr 1678
Kalibrering
ISO/IEC 17025

Our calibration and testing services are accredited according to ISO 17025. We are also certified according to ISO 9001.

SP Certified ISO 9001

Product overview





Elastocon manufacture instruments for testing of rubber and plastic materials

- Specimen preparation
- Ageing ovens
- Stress relaxation and creep
- Low temperature testers
- Hot Set testers
- Electrical testers
- Windscreen fogging testers
- Software for polymer testing
- Calibration & testing services

Rubber and plastic testing with precision

Elastocon develops, manufactures and sells instruments and software for testing of rubber and plastic materials.

We offer equipment for existing test methods and develop instruments for new test methods. Our objective is to offer instruments with high precision, which gives accurate results.

The company is based in Sweden and offers worldwide sales and service, with representatives in several countries around the world.

Elastocon is ISO 9001 certified and accredited according with ISO 17025 for our calibration and testing services.

Ackred. nr 1678
Kalibrering
ISO/IEC 17025

Elastocon offers:

- **Instruments and software for rubber and plastic testing**
- **Calibration**
- **Testing services**

Important years in the history of Elastocon

1987 Elastocon was founded by Göran Spetz.

1989 The company moved from the Spetz family garage to premises at a former hospital in Borås.

1993 We started our calibration service, which is able to calibrate most testing instruments with traceability to international references.

1999 ISO 9001 certification.

2000 ISO 17025 accreditation for calibration services.

2011 Elastocon took over the operations of Mätcentrum i Eskilstuna AB.

We also moved to our present premises in Brämhult/Borås.

2012 The length laboratory moved from Eskilstuna to Brämhult in Borås.

2015 Martin Spetz succeeds Göran Spetz as managing director for Elastocon AB.

2018 ISO 17025 accreditation for testing services.

Specimen preparation

Pneumatic specimen cutting press, EP 02, and manual specimen cutting press, EP 08, for preparation of test specimens of rubber and plastic materials, by punching. The cutting presses are small and and have a system for quick change of cutting dies. They stand secure on rubber feet and do not need to be attached to the table.

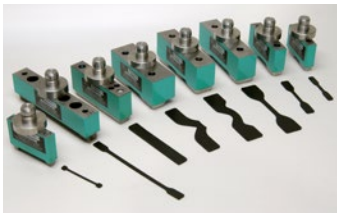
Using of cutting dies with a guiding rod. When cutting samples which curl and do not lie flat, the guiding rod **(EP 04.04)** can be used. The guiding rod makes it possible for the operator to manipulate the sample to optimise the cutting location. *Watch a demo video on our website.*

Specimen cutting dies, EP 04, are manufactured in both standard and special shapes. As an option, there is a special shank for quick mounting in presses EP 02 and EP 08. All cutting dies are manufactured with an ejector, often an ejector plate, which helps the work and protects the edges of the test specimen and the operator.

Pneumatic cutting press, EP 02.

Manual cutting press, EP 08.

Guiding rod.



Specimen cutting cies, EP 04.

Rotating knives dia 10, 13 or 16 mm for making buttons.

Various testing equipment

Thickness gauges: EV 01 for thickness measurement of rubber according to ISO 23529 and compression set measurement according to ISO 815, for example.

EV 06 and **EV 07** for thickness measurement of textiles according to ISO 5084.

Compression set rig EV 03 for the determination of the compression set characteristics of vulcanized and thermo-plastic rubbers at ambient or elevated temperatures according to ISO 815-1.

The EV 03 is suitable for use in the Elastocon's cell ageing ovens as well as in standard shelf cabinets.

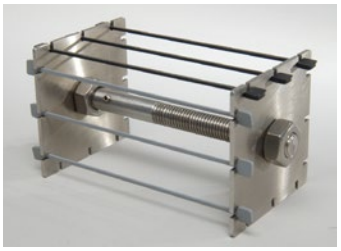
Tension set rig, EV 04, for determination of tension set of vulcanized or thermoplastic rubber under constant elongation, according to standard ISO 2285.

The rig can easily be mounted on the sample holder of Elastocon's cell ovens, or be placed inside cabinet ovens.

Tension set system, EV 12, for determination of tension set under constant tensile load, according to ISO 2285.

The EV 12 system consists of a 300 mm Mitutoyo calliper with a wireless connection to your computer, a tension set timer software, **EC 16**, and a spreadsheet template, where the value of the calliper is entered automatically.

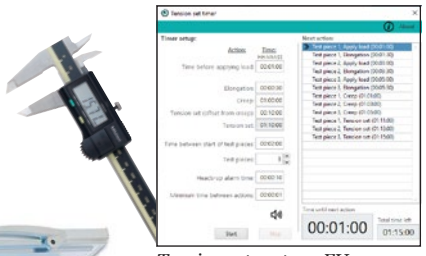
Compression set rig, EV 03.



Tension set rig, EV 04.

Thickness gauge, EV 01.

Thickness gauge, EV 06.



Tension set system, EV12.

Lab freezers

Elastocon freezing boxes have highly efficient insulation resulting in very slow temperature rise, which gives low energy consumption. Together with the environmentally friendly refrigerant, this provides less influence on the environment.

ET 03 Low temperature freezer -10 °C to -45 °C suitable for compression set at low temperatures.

ET 07 Very low temperature freezer -30 °C to -60 °C.

ET 04 Ultra low temperature freezer -60 °C to -85 °C suitable for cooling the liquid for Gehman, TR and brittleness testers.

High precision ageing ovens for rubber and plastic testing

Elastocon have produced and developed high precision ageing cabinets and cell ovens for ageing of polymer materials since 1987.

Benefitting from this long experience our latest generation of ovens represent a major step forward in the design of such instruments.

Option EB 04-IIW *– four glass window for the cabinet ageing ovens.*

Cabinet ageing ovens

Our cabinet ageing ovens meet most ISO and ASTM standards for testing of ageing of rubber and plastic materials. Depending on model, they are made with a useful volume of 50, 60 or 120 l and with a temperature range from +40 °C to +200 °C (HT-versions up to +300 °C). The ovens can be supplied with low air speed, high laminar or turbulent air speed or with a carousel, which rotates during ageing.

Cell ageing ovens

The cell ovens are available in 4 or 6 cell configurations, with multiple (individual) cell controllers and with a temperature range from +40 °C to +200 °C (HT-versions up to +300 °C, and a VHT-version up to +350 °C).

Our ageing ovens have the following features:

- Controlled from a micro PLC with colour touch screen.
- Improved insulation reduces energy consumption, environmental impact and cost.
- Cooling channels in the casing for low surface temperature.
- Resettable countdown timer for each cell or oven.
- Test names can be given in the PLC.
- Alarm history.

Two temperature sensors are used, one for temperature control and one for measuring the temperature close to the samples. This sensor can also be connected to a logging software.

Cabinet ageing oven EB 04-II *has low air speed and a flow meter that can be set between 3 to 20 changes per hour, which meets the requirements in ISO 188 method A.*

Cabinet ageing oven EB 26HT *with a carousel, which rotates during ageing.*

All Elastocon's ageing ovens meet or exceed the requirements in IEC 60811 and ISO 188.

Cell ageing oven EB 20 *is equipped with 6 cells, each with individual temperature. Each cell has individual control of the air exchange rate, and has room for 24 test pieces.*

Sample holder *– one holder per cell is included with the cell ovens.*

Specified requirements for ageing ovens

Ageing ovens is a standardized expression with very well specified requirements for different features that has been proven to be important to have a reliable ageing especially for polymeric materials. Studies have shown the importance of the control of:

- Temperature variations in time
- Temperature variations in space
- Air speed inside the oven
- Air exchange rate and also the presence of the same

The temperature accuracy is very important for heat ageing tests, as a 1 °C error in temperature corresponds to around 10 % error in test time.

Requirement	High precision ageing ovens	Laboratory ovens
Temperature accuracy in time	Yes, strict requirements	Yes
Temperature accuracy in space	Yes	No
Specified air speed	Yes	No
Specified air direction	Yes	No
Specified air exchange rate	Yes	No
Specified extra temperature sensor	Yes	No

Comparison of cell ageing ovens and cabinet ageing ovens

	Cell ageing Ovens	Cabinet ageing ovens
Inner volume	Smaller, 100 × 300 mm	Bigger, from 50 up to 120 litres
Suitable for samples, e.g. Dumb-bells	Yes	Yes
Suitable for products	No	Yes
Temperature accuracy in the whole inner space	Yes	Yes
Air speed	Fulfils standard requirements	Fulfils standard requirements
Air exchanges per hour	3–20 changes/hour, adjustable with air flow meter, with individual control for each cell	3–200 changes/hour, adjustable with air flow meter or fixed during production depending on model
Numbers of different temperatures	1–6 (each cell can have their own individual temperature and therefore works as separate ovens)	1
Numbers of different materials that can be aged simultaneous	1–6	1 (you shouldn't have different materials in the same space, they might interfere with each other)
Option for turbulent air flow	Yes, with an additional air stirrer in the bottom of the cells	Yes, EB 26 has a carousel that enables turbulent air flow and higher air speed

Test tube ovens

Elastocon's test tube ovens are designed for ageing tests according to ASTM D865 rubber-deterioration by heating in air (test tube enclosure). The ovens can also be used for testing in liquids according to ASTM D471 and ISO 1817 effect of liquids.

All needed glass tubes are included, except for water cooled condensors, **EB 11.04**, which can be supplied as an option.

Two models are available

- **Test tube oven EB 11-II** with 24 test tubes.
- **Test tube oven EB 28HT** with 4 × 6 test tubes and four temperatures.

Accessories for Elastocon's ageing ovens

Insert for ASTM, EB 07.01

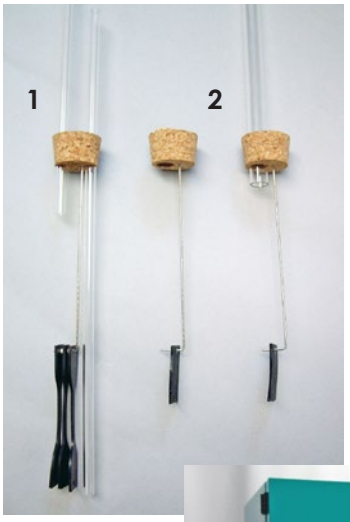
This insert has three test tubes for testing according to ASTM D865 heat ageing and ASTM D471 testing in liquids, and fits EB 19 and EB 20.

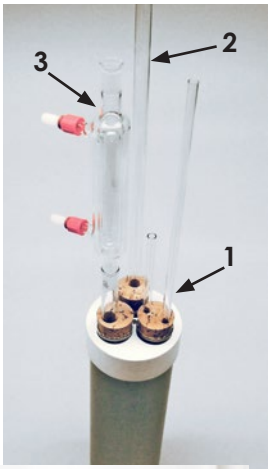
The glass tubes can be supplied with a grounded joint for a stopper or for a water cooler.

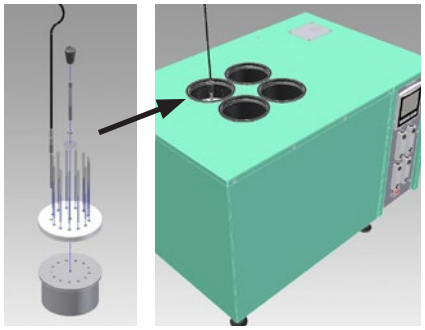
The glass tube system is also very suitable for testing in liquids according to ISO 1817.

The images to the right show three configurations.

1. *ASTM D865 Heat ageing*
2. *ASTM D471 Liquids with air cooler (with and without glass tube in the first image)*
3. *ASTM D471 Liquids with water cooler (EB 11.04, optional)*







Insert for heat stability test, EB 07.02

For cell ovens for testing of heat stability of PVC according to IEC 60811-405.

Insert for ISO 305 testing in cell ovens, EB 07.03

Has nine test tubes for testing in accordance with ISO 305 Method A, using the cell oven for stable temperature instead of oil.

Stand EB 01.01

is a stand to support the sample holder for cell ageing ovens while mounting test pieces for ageing.

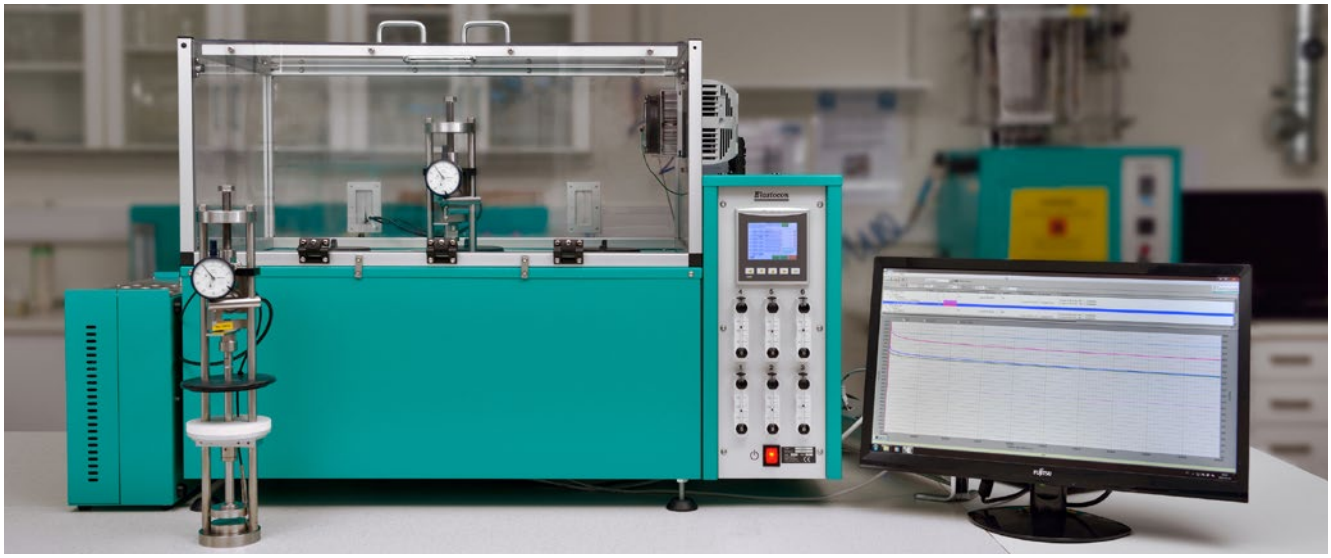
Test tube rack EB 31

with 15 test tubes included. The rack is perfect for our test tube ovens, or liquid testing in a lab oven.

Rack for ageing ovens, ERACK11

The two lower shelves are extendable and are suited for cell ageing ovens EB 19 or EB 20, and for the discontinued model EB 01-II. On top is a fixed shelf for ageing cabinets.

Stress relaxation test system



The stress relaxation test system from Elastocon is used for continuous measurement in either compression or tension. It meets the requirements in ISO 3384, ISO 6914 and ASTM D6147.

The EB 02 relaxation rigs are used in combination with the cell ovens EB 21, EB 22, EB 38, EB 39 and the programmable temperature cycling cell ovens EB 21LTHTP and EB 17, when testing at elevated temperature.

ALE test – Aeration and liquid exchange test means that it is possible to have both aeration and liquid exchange during a stress relaxation test.

ALE test consists of a special test rig where the sample is mounted, a stirrer that mixes the liquid and air inside the container, input and output of air and liquid, plus a control box that controls the new functions. This system makes it possible to test closer to real conditions, such as in a in a vehicle's fuel system, than has previously been possible to do in a laboratory.

EB 02 relaxation rigs arranged for different test methods

Rig 1 *is arranged for testing in compression according to ISO 3384.*

Rig 2 *is arranged for testing in tension according to ISO 6914 method A.*

Rig 3 *is arranged for testing in liquid according to ISO 3384.*

Rig 4 *is arranged for testing according to ALE test.*

Rig 5 *is our latest addition for testing relaxation in tension, a triple rig where you can perform a triple test in the same rig.*

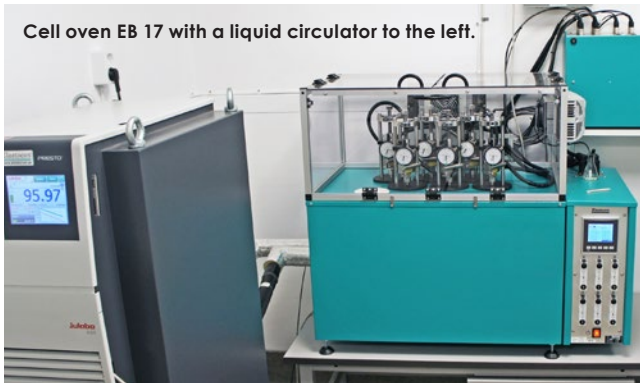
Containers *for testing of stress relaxation in liquids are some of the optional accessories for the relaxation rigs.*

Cell ovens for stress relaxation

We have cell oven versions for use in relaxation testing. The height of these ovens is lower and incorporates an integrated draught hood, to eliminate variation in force measurements due to temperature and air effects.

The ovens are available in the following versions:

- **EB 21** – 4 cells with individual temperature control, +40 °C to +200 °C (HT-version: +40 °C to +300 °C).
- **EB 22** – 6 cells with individual temperature control, +40 °C to +200 °C (HT-version: +40 °C to +300 °C).
- **EB 38** – 4 cells with individual temperature control, +40 °C to +350 °C.
- **EB 39** – 6 cells with individual temperature control, +40 °C to +200 °C (HT-version: +40 °C to +300 °C), for ASTM D6147 only.
- **EB 21 LTHTP** – 4 cells with individual temperature and cycling between +20 °C to +300 °C, tap water cooling.
- **EB 17** – 6 cells with the same temperature and cycling between -70 °C to +245 °C, requires a liquid circulator.



Cell oven EB 17 with a liquid circulator to the left.

Automatic relaxation and creep testers

Elastocon offers two models for automatic relaxation and creep tests, **EB 18-II-3** and **EB 32**. Both models perfom tests according to ISO 188 method A, ISO 3384-1 method A, ISO 6914 method A and ISO 899 with modification.

In **EB 18-II-3** each test station can run with an individual temperature, between +40 °C to +200 °C.

The **EB 32** is equipped with a liquid circulator for cooling, and can cycle between -40 °C and +200 °C, with the same temperature in all test stations, thus also performing tests according to ISO 3384-1 method B and ISO 3384-2 method A and B.

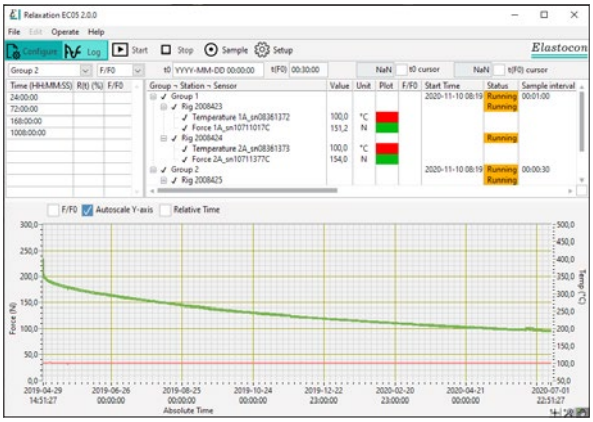
The test rigs are based on our relaxation rig EB 02, but lowering and raising of the rigs is motor driven. The compression or tension of the samples is also motor driven with a servo motor.

The instruments are, by default, delivered with compression plates and 1000 N load cells.

Other accessories such as different loadcells, testing in compression in liquid, testing in air in tension and special clamps for testing in creep according to ISO 899-1 can be ordered separately. A high temperature version with temperature up to +300 °C (EB 18-II-3HT) and a version with high force up to 2 000 N (HF) can also be supplied.

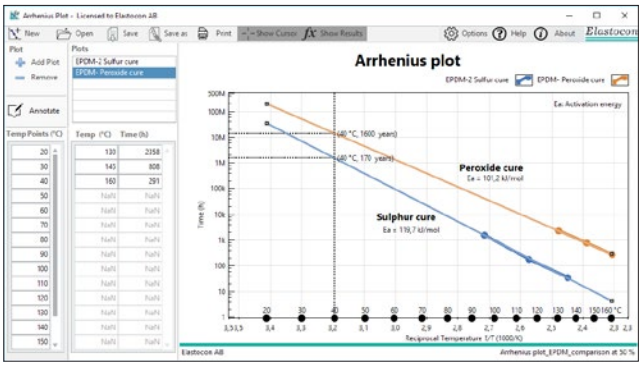
The instruments have a displacement resolution of 0,0001 mm with an accuracy of 0,003 mm.

Software for relaxation testing, EC 05



This software performs continuous relaxation tests according to ISO 3384 and ISO 6914. It is also used for evaluation of test results and creating test reports.

Software for Arrhenius plot, EC 15



Arrhenius plots can be used to evaluate results, for example, from stress relaxation tests, and to make lifetime estimations. EC 15 lets you quickly plot the graphs and display the results.

Support agreement

Elastocon offers support agreements, which are valid for 12 months before renewal. One important feature in our support agreement is free software updates during the validity time.


Elastocon offers two models for automatic relaxation and creep tests, EB 18-II-3 and EB 32.

Low temperature testers

For rubber materials there are four important standardized test methods for low temperatures.

• **TR test** for determination of low temperature characteristics by the temperature retraction procedure according to ISO 2921 and ASTM D1329.

Elastocon's **TR tester, ET 01-II**, has 6 test stations. It performs the test automatically from start to finish. The **EC 17 application**, which is a part of the TR tester, helps the user setup the test and it continuously displays the results. The EC 17 application also lets the user analyze results and create test reports.

• **Gehman test** for determination of the relative stiffness characteristics of vulcanized or thermoplastic rubbers, also called the Gehman procedure. The test is done according to ISO 1432 and ASTM D1053.

Elastocon's **Gehman tester, ET 02-II**, has 6 test stations and is automated. The **EC 18 application**, which is a part of the Gehman tester, guides the user in setting up the test and is also used for viewing test results and creating reports.

• **Brittleness test** for determination of brittleness point according to ISO 812 and ASTM D2137.

Elastocon's **brittleness tester, ET 05-II**, is a falling weight tester and holds up to 6 test pieces. The **EC 19 application**, which is a part of the brittleness tester, guides the user in performing the test, and lets the user analyze results and create test reports.

The TR tester, Gehman tester and brittleness tester can be combined using the same base unit and a rig changing system.

The **combined instrument** consists of a base unit with a cooling bath and the electronics. The different test rigs are then mounted on a rotating table. No lifting is necessary when switching from one method to another. *Watch a demo video on our website.*

An automatic computerised low temperature tester increases the precision up to 5 times. Also, the capacity increases by about 50 % and the labour time decreases by about 75 %.

TR tester, ET 01-II.

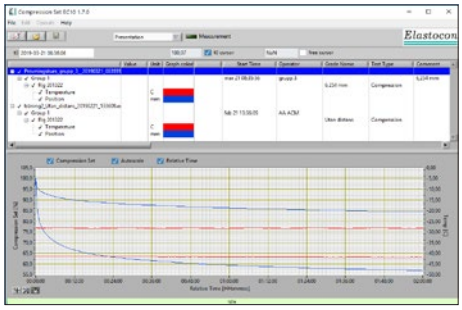
Brittleness tester, ET 05-II.

Combined low temperature instrument with a Gehman tester (ET 02-II) selected, placed on the adjustable table ET 01.08.

• **Low temperature compression set** for the determination of the compression set characteristics of vulcanized and thermoplastic rubbers according to ISO 815-2.

By using Elastocon's **EV 09 rig** in combination with a modified laboratory freezer with a special lid the low temperature compression set test can be performed without touching the test piece. All adjustments of height and releasing the compression are made outside the freezer thus improving the accuracy of the test results.

The low temperature laboratory freezer (-10 to -45 °C) is modified with the **conversion kit ET 03.01-6** for 6 rigs (pictured in the middle).



Software for low temperature compression set (LTCS), EC 10. This software monitors the temperature during the test time and records the recovery when the test piece is released.

Hot set testers

Ovens for determination of hot set

EB 16-II is made for hot set testing of cable material according to IEC 60811-2-1, IEC 60811-507 and equivalent standards.

It is built on an ageing oven that performs well inside the apparatus requirements in IEC 811.

To avoid too high temperature loss when inserting and cutting the samples, the samples are placed through a small opening in the top of the oven. To get a suitable working height and not shake the samples during insertion, the oven is fixed and the sample holder moves up and down by a servo motor driven screw system.

The oven has a controlled air exchange rate and low air speed which can be controlled by a flow meter, meeting the requirements for ageing ovens in IEC 811.

Measurements are made through the window with the included laser pointer, which is mounted on a measuring scale, placed on the door. The window can be taken apart for cleaning.

When measuring the elongation with a push on a button on the scale, the measured values are entered into one of the 4 included spreadsheet templates via a wireless connection.

The set is measured outside the oven with a included digital calliper, also connected to the computer. A finished report can then be produced in a spreadsheet software.

The basic hot set oven EB 30HT is made for hot set testing of cable material according to IEC 60811-507 and equivalent standards.

It is built on a heating cabinet with window in the door. The inner chamber of stainless steel is equipped with illumination. Measurements are made through the window with a laser pointer that is mounted on a measuring scale placed on the door. The line laser will automatically shut off when the door is opened.

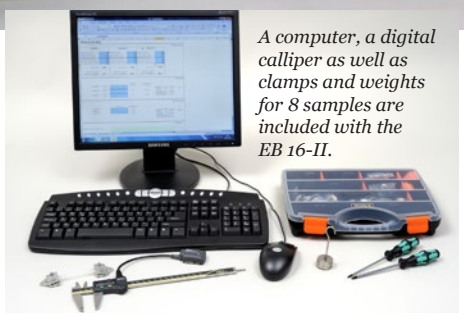
All measurements can be inserted in a spreadsheet template (included) for calculation of both the weight necessary for each sample, and the hot set test result.

4 different templates are included and ready for installation on your computer for the usage in the spreadsheet software.

Included in the purchase of hot set instruments

EB 16-II	EB 30HT*
Grips, hooks and weights for 8 samples	Grips, hooks and weights for 4 samples
Wirelessly connected calliper	No
Wirelessly connected measuring scale with line laser on the instrument	Line laser with measuring scale on the instrument
2 timers built into the PLC touch screen	No
Computer	No
Templates for calculations and reports	Templates for calculations and reports

Hot set tester, EB 16-II



A computer, a digital calliper as well as clamps and weights for 8 samples are included with the EB 16-II.

Basic hot set oven EB 30HT

**An optional kit with wireless connection and timers (EB 30.01) is available for the EB 30HT basic hot set oven.*

Equipment for electrical testing of rubber material

Resistance tester, EE 02, is an instrument for determination of electrical resistance on conductive and anti-static rubber products according to ISO 2878.


EE 02

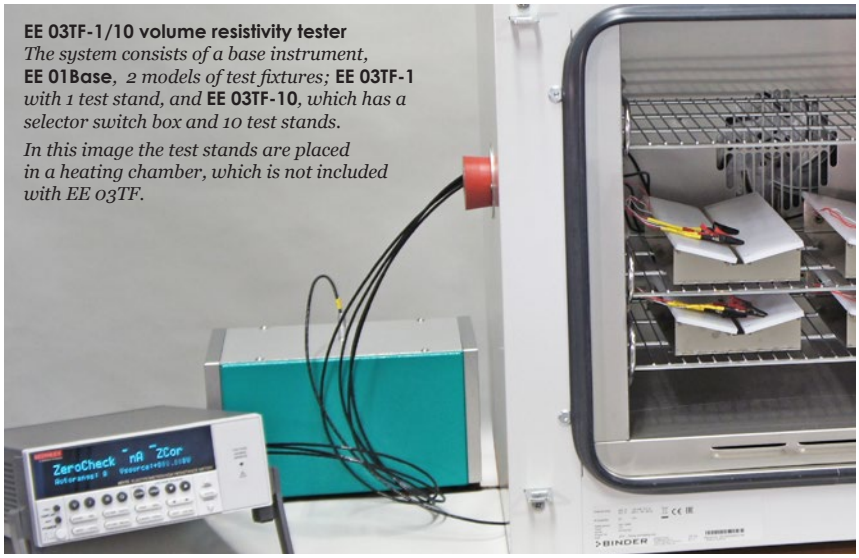
Volume resistivity tester, EE 01TF, for determination of volume resistivity on conductive and semi-conductive rubber and plastic materials, according to ISO 1853.


Volume resistivity test fixture **EE 01TF** *with base instrument* **EE 01Base**.

Volume resistivity tester, EE 03TF, for determination of volume resistivity on semi-conductive materials, according to cable standard IEC 60502-2 and ASTM D257 fig 6 for insulating materials.

Volume resistivity tester, EE 04TF, for determination of volume and surface resistivity on insulated materials according to ISO 14309, IEC 62631-3-1 and ASTM D257 fig 4.

Software for resistivity measurements, EC 14, is also required for making the resistivity measurements and for presenting and storing the data.


EE 03TF-1/10 volume resistivity tester
The system consists of a base instrument, **EE 01Base**, *2 models of test fixtures;* **EE 03TF-1** *with 1 test stand, and* **EE 03TF-10**, *which has a selector switch box and 10 test stands.*
In this image the test stands are placed in a heating chamber, which is not included with EE 03TF.


EC 14 *Software for resistivity measurements.*


The **EE 04TF** *volume resistivity test fixture combined with base instrument* **EE 01Base** *for determination of volume and surface resistivity on insulated materials.*

Equipment for polymer and carbon black analysis

Tube oven, ES 14, for polymer and carbon black analysis.

The tube oven can be used for the following and similar test methods:

- ISO 247 Rubber – Determination of ash.
- ISO 1408 Rubber – Determination of carbon black content.
- ASTM D297 Rubber – Determination of carbon black and ash content.
- ASTM D1603 Plastics – Test method for carbon black in olefin plastics.

Windscreen fogging tester – determination of fogging characteristics of trim materials in the interior of vehicles

The **windscreen fogging tester, EB 03C**, is an equipment for determination of windscreen fogging according to ISO, SAE and other automotive standards. The equipment has a compact design with the heating bath and cooling bath integrated in one casing.

For cooling the water bath, the instrument has a built in cooling system with Peltier elements.

Accessories

In parallell with a fogging test, a control test with the reference liquid DIDP shall be made to determine the fogging value.

Several different fogging accessories are available in our assortment, also company specific accessories.

*A suitable **balance** for gravimetric tests with 0,00001 g resolution.*

***Glossmeter**, 20°/60°/85°.*

***A haze-meter** measures several transparency parameters in one instrument: total transmission and haze.*

Film creep tester

Film creep tester EB 24 has a digital ruler system including a line laser pointer for manually measuring the creep.

The ruler has a wireless connection to the computer and the values are fed into an spreadsheet template, which calculates the result and presents the graphs.

Other creep testers

We can also supply other types of creep instruments, such as the **EB 15 full notch creep tester (FNCT)** for tests according to ISO 16770, and the **EB 25 creep tester**, for tests according to ISO 899, for example.

Various testing equipment

The **EB 34** is an apparatus for ISO 1817, 3.2 tests with liquid on one side.

The **ES 16** is used for determination of apparent density of granulates, that can be poured from a specified funnel, according to ISO 60.

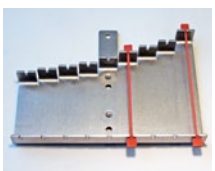
The **ES 20** is used for determination of flotation of granular plastics, according to DIN 53 492.

The **ES 32** glass bowl is used for determination of water vapour transmission rate, according to ISO 2528.

The **ES 42** autoclave is used for testing of materials in liquids, such as fuels, coolants and oils to avoid evaporation. For a maximum pressure of 3 bar.

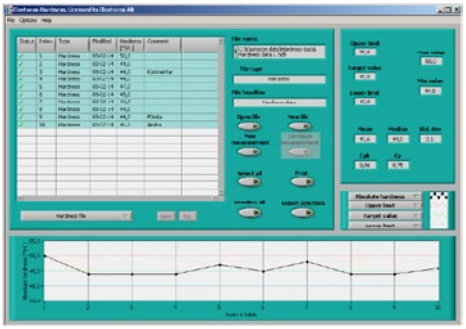
The **ES 45** sample holder is used for ozone tests, according to ISO 1431 method C.

ES 32

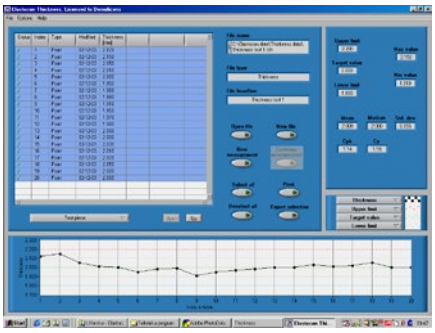


ES 45

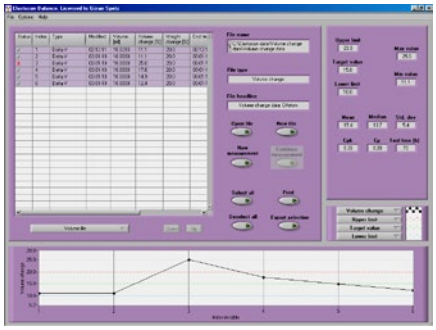
Software



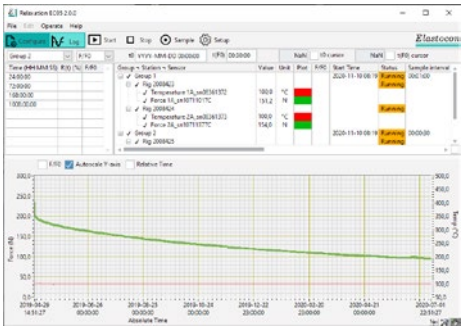
Hardness, EC 01. Performs hardness tests for all Shore and IRHD scales. Can be connected to several hardness testers from manufacturers such as Bareiss and Wallace.



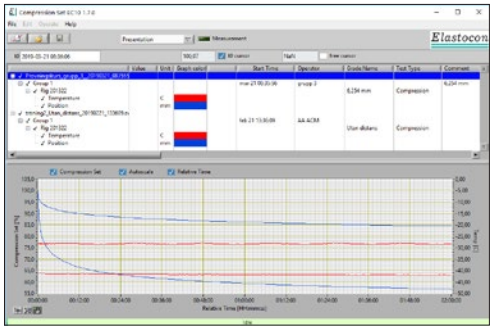
Thickness, EC 02. Performs thickness measurements and calculations of compression set. Can be connected to Mitutoyo gauges, for example.



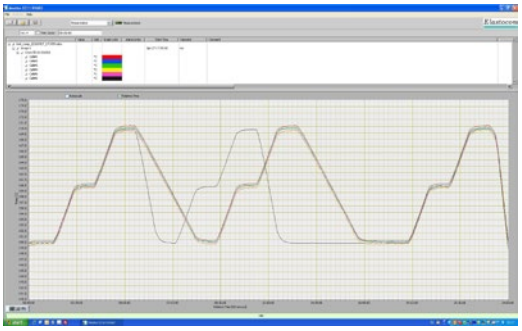
Balance, EC 03. Measures and calculates density, weight change and volume change. Works with balances from Kern and Sartorius, for example.



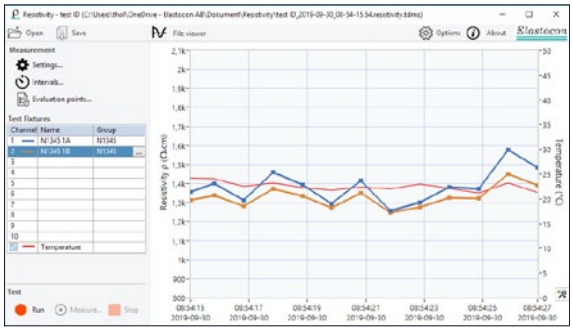
Relaxation, EC 05. Performs, evaluates and create reports for stress relaxation tests of rubber. Supports both ISO and ASTM standards.



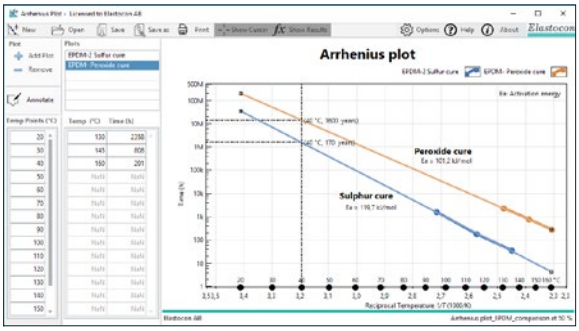
Low temperature compression set (LTCS), EC 10. Monitors the temperature during the test time and records the recovery when the test piece is released.



Monitor plus, EC 11. Monitors instruments such as ovens and laboratories for temperature and humidity.

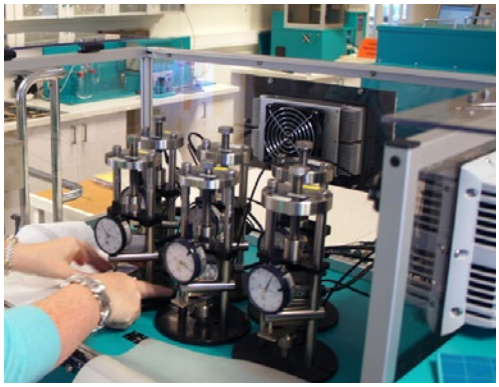


Resistivity, EC 14. Performs resistivity measurements, presents and store the data.



Arrhenius plot, EC 15. Evaluates results from stress relaxation tests, for example, and performs life time estimations. Plots graphs and displays the results.

Elastocon offers accredited rubber and plastic contract testing services



Stress relaxation testing.

Low-temperature retraction (TR test).

Tensile stress-strain properties.

Elastocon performs contract testing and consultancy in rubber and plastic. Our specialities are ageing tests, estimation of lifetime and testing of low temperature properties on rubber materials.

We are accredited for 15 rubber testing methods, see the box to the right. It is Swedac, the Swedish Board for Accreditation and Conformity Assessment, that performs the accreditation.

We can also do other non-accredited tests.

Some examples of our non-accredited tests are:

- Weathering tests.
- Determination of fogging characteristics of trim materials in the interior of automobiles.
- Determination of the electrical conductivity or resistance of rubber material.
- Thermal conductivity testing.

For polymer testing inquiries and quotations, please contact us via info@elastocon.se

Accredited rubber test methods in Elastocon's testing laboratory

ISO 34-1	Tear strength
ISO 37	Tensile stress-strain properties
ISO 48-2	Hardness IRHD
ISO 48-4	Hardness Shore
ISO 188	Accelerated ageing and heat resistance
ISO 815-1	Compression set
ISO 815-2	Low temperature compression set
ISO 1432	Low-temperature stiffening (Gehman test)
ISO 1817	Resistance to liquids
ISO 2781	Density
ISO 2921	Low-temperature retraction (TR test)
ISO 3384-1	Stress relaxation in compression
ISO 3384-2	Cycling relaxation in compression
ISO 6914	Ageing characteristics by measurement of stress relaxation in tension
ISO 11346	Estimation of life-time and maximum temperature of use

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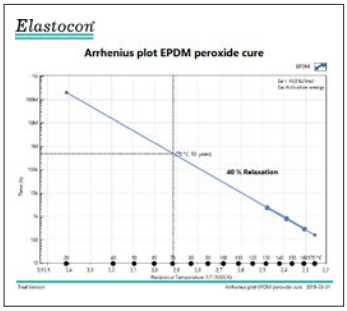
Provning
ISO/IEC 17025

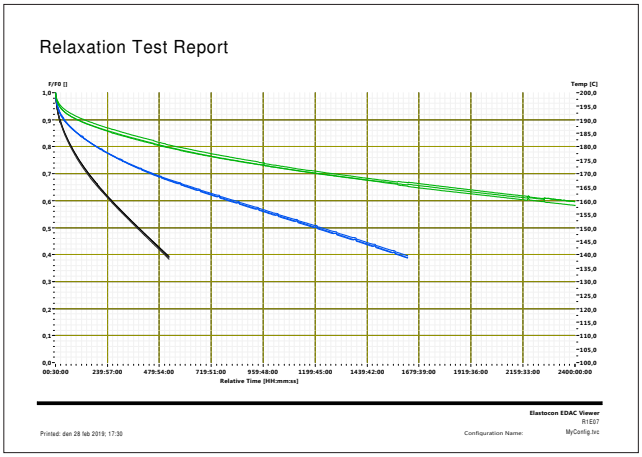
Lifetime estimation

One of our specialties is lifetime estimation, especially of rubber materials.

The testing is performed at three different temperatures and a critical property is tested until the function is finished.

When testing rubber, it's common to use stress relaxation in either compression or tension. The times to reach the "end of life" time for each temperature will be plotted in an Arrhenius graph and the lifetime at lower temperatures can be extrapolated.





***Above**: EPDM relaxation curves at three temperatures.*
***Left**: Arrhenius plot at 40 % relaxation.*

Elastocon offers accredited calibration

Elastocon Mätcentrum is the part of Elastocon AB performing calibration. We offer calibration both in our calibration laboratory and in the field. We are accredited within ISO 17025 for calibration and certified for ISO 9001.

Calibration is an important part of quality work today. At Elastocon we are experts in calibration and have the necessary equipment and education as well as the accreditation.

Employing external calibration services, such as ours, can save money for your business.

Let Elastocon calculate for your external calibration work and give you a quotation. Consider that it might be less expensive for your company to let us do the calibration you perform internally as well.

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We offer a wide range of calibration services within the following units:

• Length • Mass • Temperature • Force
• Hardness • Pressure • Elongation • Speed
• Time* • Humidity* • Angle* • Gloss*
• Small gas flows* • Torque*

** Not included in accreditation.*

The calibration is done with traceability to international reference standards. After the calibration, a signed calibration certificate with all data such as results, traceability and uncertainty is issued.

Field calibration

Elastocon performs a large part of our calibration tasks in the field, on-site at the customer's facility. Many instruments are simply too large to be sent in for calibration in our laboratory. Other types of equipment, like balances, are greatly affected by their ambient environment.

For further information, quotations, and orders, please contact us via info@kalibrera.se
Read more on our website www.kalibrera.se

Material selection and specifications

We can assist you with a material specification for the material in your products and make ongoing tests of your delivered products. This can be very important for your product quality, especially if you use a supplier far away from you. Please contact us for more information.

Training in testing

Do you need customized training in testing, either at us or at your company? Please contact us for more information.

Rubber and plastic testing with precision

Since 1987 Elastocon develops, manufactures and sells instruments and software for testing of rubber and plastic materials.

We offer equipment for existing test methods and develop instruments for new test methods. Our objective is to offer instruments with high precision, which gives accurate results.

The company is based in Sweden and offers worldwide sales and service, with representatives in several countries around the world.

Elastocon is ISO 9001 certified and accredited according with ISO 17025 for our calibration and testing services.

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Elastocon offers:

- **Instruments and software for rubber and plastic testing**
- **Calibration**
- **Testing services**

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Representatives

Elastocon has local representatives in several countries around the world, please see our website www.elastocon.com for contact information.

Note that we have different websites:

- **www.elastocon.com** for our market outside of the Nordic countries.
- **www.elastocon.se** for our Nordic market with additional testing equipment from several well-known manufacturers that we represent in the Nordic region. We only sell these instruments in the Nordic countries.

Elastocon®

Follow us on **LinkedIn** and **YouTube**

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