

Elastocon[®] MätCentrum

Calibration

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Ackred. nr 1678
Kalibrering
ISO/IEC 17025

Our calibration lab is accredited by Swedac for:

- Length • Mass
- Temperature • Force
- Pressure • Hardness
- Elongation • Speed



We are experts in calibration

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.

How can you get lower costs for the calibration?

Calibration costs today can for both the internal and the external calibration become a considerable part of the cost for quality work. Employing external calibration services can save your company money. Let us calculate for your calibration work and give you a quotation.

Don't forget to consider that it might be less expensive for your company to let us do the calibration you perform internally as well. We are experts in calibration and have the necessary equipment and education as well as the accreditation.

What is calibration?

Calibration of a measuring instrument is to determine the deviation in measuring values between the instrument and a traceable value.

What is adjustment?

Adjustment is to adjust an instrument so it will show as close as possible to the correct value. After this the calibration is performed to determine the remaining measuring error.

What is accredited calibration?

An accredited calibration is performed according to a method that is approved by the Swedish authority Swedac. Accredited calibration is performed of a laboratory who has a quality system and methods that are approved and continuously controlled by Swedac.

Swedac is the Swedish Board for Accreditation.

What is traceability?

During a traceability calibration a standard that is calibrated against the Swedish standards for the current quantity is used. The Swedish standards are in their turn calibrated against the international standards that is handled of a national metrology centre for each quantity. A national metrology centre is a government laboratory that is the best in the country to measure a certain quantity. Most of the national metrology centre in Sweden are at RISE Research Institutes of Sweden, located in Borås.

What is measurement uncertainty?

The measurement uncertainty is the uncertainty in the calibration result that is remaining after calibration. The uncertainty is calculated for each measuring situation. In the uncertainty are among other things the standards' accuracy, the calibrated instruments resolution as well as ambient factors such as temperature etc included.



In addition to Elastocon's general laboratory for calibration at 23 °C we also have a constant room for calibration of length at 20 °C ± 0,5 °C, and a room for temperature calibration.

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Length

Length is the quantity where we have most methods for different types of instruments.

The following measurements relate to accredited calibration methods but we can usually calibrate greater measurements with traceability to international standards.

Micrometers, calipers, dial indicators, measuring scales, measuring tapes and surface plates are calibrated both on-site at the customers facility and in our calibration laboratory.

Gauge blocks, rings and gauges are only calibrated in our calibration laboratory since there are special demands on both the environment where it's done and the equipment that is used.

Rings and gauges

Calibration up to 250 mm.

Gauge blocks

Calibration of gauge blocks up to 500 mm.

Micrometers

We calibrate micrometres up to 500 mm.

Calipers

We calibrate calipers up to 1 m.

Dial Indicators

Calibration of analogue and digital dial indicators up to 100 mm.

Measuring scales and measuring tapes

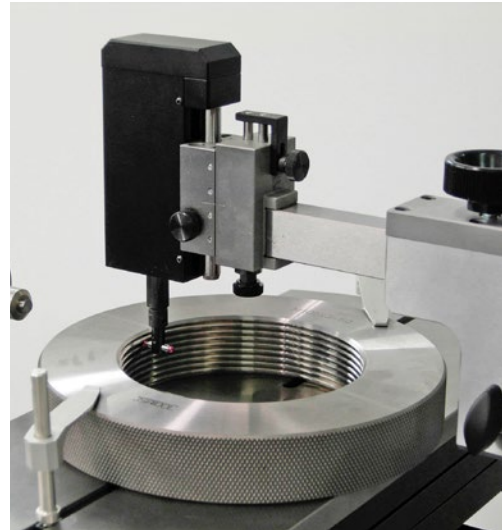
We calibrate up to 30 m long measuring scales and measuring tapes.

Surface plates

Flatness calibration up to 5 000 mm. Remember that a surface plate is a reference surface. These are usually calibrated in the field.



The Gauge Block Comparator increases the accuracy and speed when calibrating gauge blocks.



Calibration of thread rings gauges with measuring instrument Labconcept Nano.

Height gauges

(non accredited method)

Height gauges and profile projectors are often calibrated in the field and this is usually done in the context of the calibration of the surface plates.



Tester for dial indicators.

Angles and protractors

(non accredited method)

These are calibrated with one of our developed methods.



Calibration of surface plates.



Profile projector.

Temperature

In our calibration laboratory we usually use a liquid bath for calibration of temperature sensors, this gives the best accuracy.

We can also calibrate in air, i.e. when the sensor cannot withstand liquid.

Furthermore we can calibrate heating cabinets and liquid baths.

On-site we use block calibrators which give a slightly less accuracy, but is smoother for use in the field.

Pressure

We offer calibration of pressure gauges from -80 kPa up to 40 MPa. This is done both in the field and in our calibration laboratory.

Mass

Balances are calibrated almost only in the field, this is due to the fact that display of mass is greatly affected by the ambient environment, i.e. gravity and air draughts.

We are accredited for calibration of balances/scales up to 150 kg. Scales up to 5 000 kg we can calibrate with traceability according to our own method.



Calibration of laboratory scale.

Hardness

Hardness tester for rubber and plastic in the scales IRHD and Shore are calibrated both in our laboratory and in the field. Reference blocks for Shore and IRHD are calibrated in our laboratory.



Calibration of temperature in miniature liquid bath.



Calibration of manometers.



Calibration of reference blocks.

Force

We calibrate tensile testers up to 500 kN and then the calibration of speed and tension can be included.

We can calibrate other types of force measure instrument such as load cells with amplifiers as well.

Speed

This calibration is mainly performed on tensile testers.

Elongation

Just as for speed this is calibration mainly for tensile testers. But we can manage other types of extensometers as well.

Time

(non accredited method)

We can calibrate stopwatches and timers.

Relative humidity (RH)

(non accredited method)

Hygrometers are calibrated in our laboratory, whilst climate chambers most often are calibrated in the field for practical reasons.



Calibration of hygrometer.

Gas flows

(non accredited method)

Flow meters for ageing cabinets and analytical instruments we can calibrate for flows up to 20 l/min.



Calibration of tensile tester.



Calibration of flow meter with float.

Torque

(non accredited method)

We calibrate torque wrenches up to 3 000 Nm.

In cooperation with another calibration company we can offer accredited calibration as well.



Electrical quantities

(non accredited method)

We calibrate resistivity testers and conductivity meters.

In cooperation with another calibration company we can also offer calibration of other instruments such as multimeters as well.



Conductivity meters

Gloss

(non accredited method)

We can calibrate gloss meters that measure with different angles.

Calibration and service of weathering equipment

We offer calibration and service of Q-Lab's equipment for weathering, light stability, and corrosion for customers in Sweden, Norway and Denmark.



Universal Calibrator (UC) System for calibrating irradiance and temperature in QUV and Q-SUN Weathering Test Chambers.

Transport containers

Calibrating regularly? You can sign an agreement with Elastocon Mätcentrum about your calibration!

If you do, we will provide you with two transport containers with interior, to secure the transport of your instruments.



Gloss meter with three angles: 20°/60°/85°.

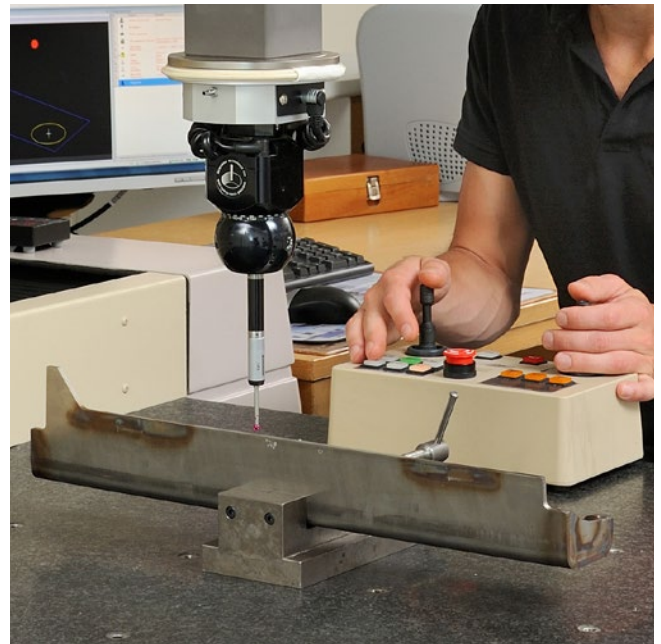
Measurement tasks

We perform measurements in our coordinate measuring machine.

Measuring range: 700 × 600 × 450 mm.

Qualified measurements of short sample series, spot-checks, reference samples, prototypes, control measurements, third party measurements and measurement of tools and fixtures.

We can also assist with technical measuring advice.



Measurements in our coordinate measuring machine.

What quantities can we calibrate?

Quantity	Measuring range	Measuring uncertainty	Example of instruments	
Length	0,5 mm – 100 mm	$\pm 0,07 \mu\text{m} - 0,15 \mu\text{m}$	Gauge blocks, steel	
	125 mm – 500 mm	$\pm 0,46 \mu\text{m} - 0,70 \mu\text{m}$	Gauge blocks, steel	
	1 mm – 100 mm	$\pm 1,5 \mu\text{m}$	Cylindrical gauges	
	1,5 mm – 250 mm	$\pm 1,1 \mu\text{m} - 1,8 \mu\text{m}$	Cylindrical rings	
	0,15 mm – 20 mm	$\pm 1,5 \mu\text{m}$	Measurement threads and measurement sticks	
	25 mm – 500 mm	$\pm 1,8 \mu\text{m} - 2,7 \mu\text{m}$	Control measure	
	0 mm – 150 mm	$\pm 3 \mu\text{m}$	Micrometers	
	150 mm – 500 mm	$\pm 9,0 \mu\text{m} - 16,0 \mu\text{m}$	Micrometers	
	6 mm – 100 mm	$\pm 3,6 \mu\text{m} - 4,8 \mu\text{m}$	3 point Micrometer	
	0 mm – 300 mm	$\pm 33,0 \mu\text{m} - 43,0 \mu\text{m}$	Calipers	
	300 mm – 1000 mm	$\pm 33,0 \mu\text{m} - 82,0 \mu\text{m}$	Calipers	
	0 mm – 100 mm	$\pm 2,0 \mu\text{m}$	Dial indicators	
	0 mm – 1000 mm	$\pm 0,3 \mu\text{m} - 0,6 \mu\text{m}$	Steel scales	
	0 mm – 8 m	$\pm 0,5 \text{ mm}$	Measuring tapes	
	0 mm – 30 m	$\pm 1,3 \text{ mm}$	Measuring tapes	
	Up to 100 mm	$\pm 5,7 \mu\text{m}$	Thread gauges	
3 mm – 125 mm	$\pm 5,6 \mu\text{m}$	Thread rings		
Up to 5 000 mm	$\pm 4,8 \mu\text{m} - 6,1 \mu\text{m}$	Surface plates		
Mass	1 g – 10 g	$\pm 0,017 \text{ mg} - \pm 0,031 \text{ mg}$	Balances, Scales	
	10 g – 100 g	$\pm 0,031 \text{ mg} - \pm 0,08 \text{ mg}$		
	0,1 kg – 1 kg	$\pm 0,08 \text{ mg} - \pm 0,8 \text{ mg}$		
	1 kg – 10 kg	$\pm 0,8 \text{ mg} - \pm 8 \text{ mg}$		
	10 kg – 20 kg	$\pm 8 \text{ mg} - \pm 9 \text{ mg}$		
	20 kg – 80 kg	$\pm 0,6 \text{ g} - \pm 1,3 \text{ g}$		
	80 kg – 150 kg	$\pm 2,4 \text{ g} - \pm 2,4 \text{ g}$		
	*150 kg – 5 000 kg	$\pm 0,5 \text{ kg} - \pm 1,0 \text{ kg}$		
Temperature	-70 °C – -28 °C	$\pm 0,5 \text{ °C}$	Controllers, indicators Temperature instruments	
	-28 °C – 0 °C	$\pm 0,1 \text{ °C}$		
	0 °C – 200 °C	$\pm 0,05 \text{ °C}$		
	200 °C – 300 °C	$\pm 0,2 \text{ °C}$		
	300 °C – 400 °C	$\pm 1,0 \text{ °C}$		
	20 °C – 200 °C	$\pm 0,2 \text{ °C}$ <i>applicable in the field</i>		
	200 °C – 250 °C	$\pm 0,5 \text{ °C}$ <i>applicable in the field</i>		
	250 °C – 400 °C	$\pm 1,0 \text{ °C}$ <i>applicable in the field</i>		
*400 °C – 1000 °C	$\pm 3,0 \text{ °C}$			
Hardness	Shore durometers	10 – 90° Sh	$\pm 0,5 \text{ ° Sh}$	Shore durometers
	IRHD hardness meters	10 – 100° IRH	$\pm 0,4 \text{ ° IRH}$	IRHD hardness meters
	Reference rubber block	30 – 95°	$\pm 1^\circ$	Reference rubber blocks

* non accredited method



Swedens national kilogram no 40 from 1889.



The old retired speaking clock service is found at RISE Research Institutes of Sweden, located in Borås, where you can find the new speaking clock service as well.

Quantity	Measuring range	Measuring uncertainty	Example of instruments	
Force	0,1 N – 10 N	Tension & Compression	± 0,002 N	Load cells, tensile testers <i>Load cells larger than 2 kN can only be calibrated within their own load frame, typically carried out on-site.</i>
	10 N – 50 N	Tension & Compression	± 0,007 N	
	50 N – 200 N	Tension & Compression	± 0,03 N	
	200 N – 500 N	Tension & Compression	± 0,07 N	
	500 N – 2000 N	Tension & Compression	± 0,8 N	
	2 kN – 10 kN	Tension & Compression	± 8 N	
	10 kN – 20 kN	Tension & Compression	± 15 N	
	20 kN – 30 kN	Tension & Compression	± 43 N	
	30 kN – 50 kN	Tension & Compression	± 65 N	
	50 kN – 100 kN	Tension & Compression	± 140 N	
	100 kN – 300 kN	Tension & Compression	± 420 N	
	300 kN – 500 kN	Tension & Compression	± 660 N	
Elongation	5 – 52 % at l_0 25 mm		0,04 %	Extensometers
	5 – 1 200 % at l_0 20 mm		0,12 %	
	10 – 1 200 % at l_0 10 mm		0,30 %	
Speed	1 – 10 mm/min		0,06 mm/min	Tensile testers
	10 – 25 mm/min		0,13 mm/min	
	25 – 50 mm/min		0,25 mm/min	
	50 – 100 mm/min		0,50 mm/min	
	100 – 200 mm/min		1,0 mm/min	
	200 – 250 mm/min		1,3 mm/min	
Pressure	250 – 500 mm/min		2,5 mm/min	Pressure gauges, manometers
	-10 kPa – -80 kPa		± 0,4 kPa	
	-1 kPa – -10 kPa		± 20 Pa	
	-100 Pa – -1 kPa		± 4 Pa	
	-3 Pa – -100 Pa		± 1,0 Pa	
	3 Pa – 100 Pa		± 0,5 Pa	
	100 Pa – 1 kPa		± 2 Pa	
	1 kPa – 10 kPa		± 10 Pa	
	10 kPa – 200 kPa		± 0,2 kPa	
	200 kPa – 8 MPa		± 5 kPa	
8 MPa – 20 MPa		± 26 kPa		
20 MPa – 40 MPa		± 28 kPa		
Time*	1s – 16 h		± 0,21 s	Timers etc.
Humidity*	0 – 100 % RF (0 – 85 °C)		± 1,0 % RF	Hygrometers, climate chambers

* non accredited method

Quantity	Measuring range	Measuring uncertainty	Example of instruments
Angle*	0 – 360°	–	Goniometers Protractors Fixed angles
Torque*	0,2 – 3 000 Nm	–	Torque wrenches
Gloss*	0 – 100 %	0,5 %	Gloss meters
Electrical quantities*	A, V, ohm		Resistivity testers Multimeters
Small gas flows*	0,01 - 20 l/min		

* non accredited method

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Elastocon®

MätCentrum

Elastocon Mätcentrum is the part of
Elastocon AB performing calibration.

Elastocon is active in three areas:

- sales of material testing instruments
- calibration of measuring instruments
- material testing services

The two latter are both accredited by Swedac.



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