Elastocon®
MätCentrum

Calibration

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SWEDAC ACKREDITERING
Ackred. nr 1678
Kalibrering
ISO/IEC 17025

Our calibration lab is accredited by Swedac for:

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

SP Certified ISO 9001

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 unit is used. The Swedish standards are in their turn calibrated against the international standards that is handled of a national metrology centre for each unit. A national metrology centre is a government laboratory that is the best in the country to measure a certain unit. 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.

The general laboratory for calibration at 23 °C. In addition to this we 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

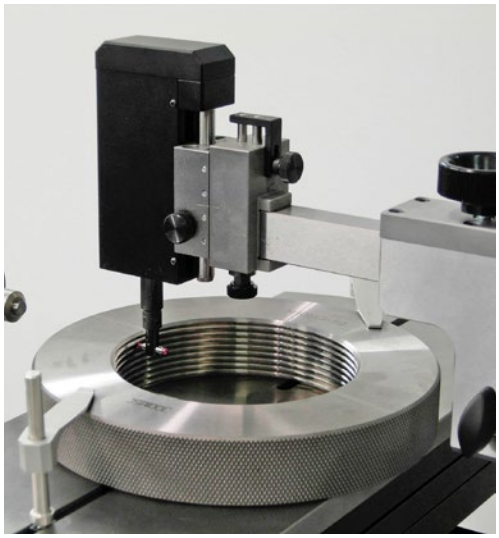
Length is the unit where we have most methods for different types of instruments.

The following measurements relate to accredited calibration methods but 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.

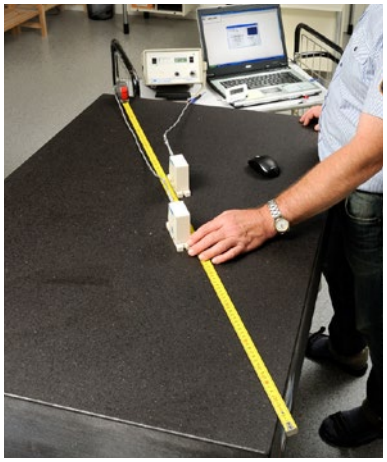
Gauge blocks, rings and gauges are only calibrated in our calibration laboratory since there are special demands on both the environment where it's done and the equipment that is used.

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



Calibration of thread rings gauges with measuring instrument Labconcept Nano.

Tester for dial indicators.



Calibration of surface plates.

Profile projector.

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.

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.

Angles and protractors

(non accredited method)

These are calibrated with one of our developed methods.

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.

Calibration of temperature in miniature liquid bath.

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.

Calibration of manometers.

Mass

Calibration of laboratory scale.

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.

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 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.

Calibration of tensile tester.

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 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 units

(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.

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

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.

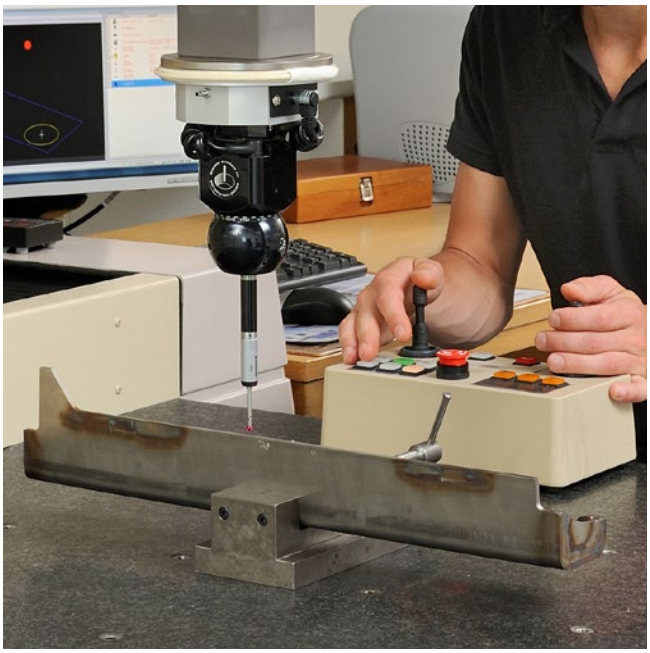
Measurement tasks

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 units can we calibrate?

Unit	Measuring range	Measuring uncertainty	Example of instrument
Length	0,5 mm – 100 mm	± 0,07 µm – 0,15 µm	Gauge blocks, steel
	125 mm – 500 mm	± 0,46 µm – 0,70 µm	Gauge blocks, steel
	1 mm – 100 mm	± 1,5 µm	Cylindrical gauges
	1,5 mm – 250 mm	± 1,1 µm –1,8 µm	Cylindrical rings
	0,15 mm – 20 mm	± 1,5 µm	Measurement threads and measurement sticks
	25 mm – 500 mm	± 1,8 µm – 2,7 µm	Control measure
	0 mm – 150 mm	± 3 µm	Micrometers
	150 mm – 500 mm	± 9,0 µm – 16,0 µm	Micrometers
	6 mm – 100 mm	± 3,6 µm – 4,8 µm	3 point Micrometer
	0 mm – 300 mm	± 33,0 µm – 43,0 µm	Caliper
	300 mm – 1000 mm	± 33,0 µm – 82,0 µm	Caliper
	0 mm – 100 mm	± 2,0 µm	Dial indicator
	0 mm – 1000 mm	± 0,3 µm – 0,6 mm	Steel scale
	0 mm – 8 m	± 0,5 mm	Measuring tape
	0 mm – 30 m	± 1,3 mm	Measuring tape
	Up to 100 mm	± 5,7 µm	Thread gauges
	3 mm – 125 mm	± 5,6 µm	Thread rings
	Up to 5 000 mm	± 4,8 µm – 6,1 µm	Surface plates
Mass	1 g – 10 g	± 0,017 mg – ± 0,031 mg	Balances, Scales
	10 g – 100 g	± 0,031 mg – ± 0,08 mg	
	0,1 kg – 1 kg	± 0,08 mg – ± 0,8 mg	
	1 kg – 10 kg	± 0,8 mg – ± 8 mg	
	10 kg – 20 kg	± 8 mg – ± 9 mg	
	20 kg – 80 kg	± 0,6 g – ± 1,3 g	
	80 kg – 150 kg	± 2,4 g – ± 2,4 g	
	150 kg – 5 000 kg	± 0,5 kg – ± 1,0 kg	*
Temperature	-70 °C – -28 °C	± 0,5 °C	
	-28 °C – 0 °C	± 0,1 °C	Controllers, Indicators
	0 °C – 200 °C	± 0,05 °C	Temperature instruments
	200 °C – 300 °C	± 0,2 °C	
	300 °C – 400 °C	± 1,0 °C	
	20 °C – 200 °C	± 0,2 °C *applicable in the field*	
	200 °C – 250 °C	± 0,5 °C *applicable in the field*	
	250 °C – 400 °C	± 1,0 °C *applicable in the field*	
	400 °C – 1000 °C	± 3,0 °C	*
Hardness			
Shore durometers	10 – 90° Sh	± 0,5 ° Sh	Shore durometers
IRHD hardness meters	10 – 100° IRH	± 0,4 ° IRH	IRHD hardness meters
Reference rubber block	30 – 95°	± 1°	Reference rubber block

** 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.

Unit	Measuring range	Measuring uncertainty	Example of instrument
Force	0,1 N – 10 N Tension & Compression	± 0,002 N	Load Cells, Tensile tester
	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	*Load cells larger than 2 kN can only*
	10 kN – 20 kN Tension & Compression	± 15 N	*be calibrated within their own load frame,*
	20 kN – 30 kN Tension & Compression	± 43 N	*typically carried out on-site.*
	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 %	Extensometer
	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 tester
	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	
	250 – 500 mm/min	2,5 mm/min	
Pressure	-10 kPa – -80 kPa	± 0,4 kPa	Pressure Gauge, Manometer
	-1kPa – -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 *	Timer etc
Humidity	0 – 100 % RF (0 – 85 °C)	± 1,0 % RF *	Hygrometer Climat Chambers

** non accredited method*

Unit	Measuring range	Measuring uncertainty		Example of instrument
Angle	0 – 360°	–	*	Goniometer Protractors Fixed angles
Torque	0,2 – 3 000 Nm	–	*	Torque wrenches
Gloss	0 – 100 %	0,5 %	*	Gloss meter
Electrical units (example)				Resistivity tester Multimeter
Small gas flows	0,01 - 20 l/min		*	

** non accredited method*

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+46 33 323 39 91

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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