Content

Planning of a calibration intercomparison with the calibration object in force. ILC force 2022:2

Proficiency testing provider (PT)

Swedish Metrology and Quality AB (SMQ) is organising this intercomparison on calibrations of:

1. Force calibration tensile and compression 500 kN (ISO 7500-1)
2. Force calibration 8 MN (ISO 7500-1)
3. Extensometer calibration range 12,5 mm (EN ISO 9513)

Participants may choose the objects they want to calibrate.

This concept of the intercomparison on calibration has been decided by the advisory group related to this calibration areas. No subcontractors are involved in the intercomparison.

Participants in the intercomparison

There are three categories of laboratories that may participate in this comparison:

- Accredited laboratories
- Laboratories that will apply for accreditation.
- Laboratories that want to evaluate their calibration quality.

The result of the intercomparison will establish a base for the CMC values in calibrations for the laboratories.

The number of participants is minimum 5 and maximum 15.

Evaluation of values included in the intercomparison.

A consensus value will be established as a base for calculations.

Time schedule and detailed documented instructions

The time for calibration will be established in cooperation with the participants during the period week 16-17 2023 (April 17-28).

A detailed time schedule and technical instructions together with the reporting protocol in form of an excel document will be sent to the participants who have registered to the ILC.

Each participant will have access to the machines for maximum 8 hours and use its own method for calibration. The participants that only calibrates one force machine or extensometer will have access to the machine maximum 4 hours.

Preliminary data from the calibration shall be given to the organiser by e-mail directly after finishing the measurements. The final calibrating certificate may have the form you are used to and shall be sent as pdf-file one week after finalizing the work.

Calibration site

KTH Hållfasthetslära
Teknikringen 8D
Stockholm, Sweden

The organiser will be present during the work.

Equipment to calibrate

Force Machine 1

- MTS/Lebow model 3119-103
- Material testing machine
- Measuring range 500 kN compression and tension
- Resolution 0,02 kN

Force Machine 2

- Manufacturer MTS model STOREBROR LC
- Material testing machine
- Measuring range 8 MN compression
- Resolution 0,10 kN

Extensometer

- MTS model 634.12F-51
- Axial extensometer with gage length 25 mm.
- Measuring range 0-12.5 mm
- Resolution 1µm

There will be more information given to the laboratories when they have registered for this ILC.

Calibration points

The participants shall calibrate according to their own method and use their reference equipment. The calibration points on force on 500 kN (compression and extension) will be:

- 50 kN
- 100 kN
- 200 kN
- 300 kN
- 400 kN
- 500 kN

The calibration points on force on 8 MN (compression) will be:

- 0,5 MN
- 1,0 MN
- 2,0 MN
- 5,0 MN
- 8,0 MN

Calibration points on the extensometer will be:

- 1 mm
- 2 mm
- 3 mm
- 4 mm
- 5 mm
- 10 mm
- 12.5 mm

Observe that you can participate even if you cannot calibrate up to maximum capacity e.g., 1 MN is acceptable on the 8 MN machine as well as 10 mm is acceptable on the extensometer.

Statistical analyses that will be used

The organiser calculates the reference value based on the consensus principle. That value will be used as reference in the calculations.

The formula described in ISO/IEC 17043:2010 annex B (formula B5) which gives En-values

Reporting

Participants shall send the calibration certificate to the organiser within one week after the calibrations are finished.

A draft report will be given to the participants within 4 weeks from the time when the last participant has reported the results in a calibration certificate.

The participant shall comment on the draft report within two weeks after receiving the draft report.

A participant not following the described reporting rules without giving reasons will be excluded from the report.

A participant may decide to leave the work before the draft report is distributed to the participants.

The participant may appeal to the full report if there are major faults in the report.

The report will be anonymously, and the participants will get an identification code related to the results in a separate e-mail.

Damaged PT item

The participant shall immediately inform the organiser about any damages on the PT item and the organiser will take appropriate actions.

Price for participation

Price for laboratories:

- Basic price 1 650 EUR
- In addition, 260 EUR on calibration of force compression of force machine 500 kN
- In addition, 260 EUR on calibration of force extension of force machine 500 kN
- In addition, 360 EUR on calibration of force compression of force machine 8 MN
- In addition, 260 EUR on calibration of extensometer

The basic price will be invoiced when the laboratory has registered for the ILC.

If the laboratory decides not to fulfil their part of the agreement the basic price shall be paid.