

# Calibration Services according to VK007 (Works calibration)

## Application

- Comparing a measuring device with a standard

## Special Features

- Works calibration up to 3MN / 300t
- Traceability to the national standard documented
- Service for Non-A.S.T. sensors and instrument

**Calibration** is the comparison of a measuring instrument with the national standard. The quality standard DIN EN ISO 9001:2015 requires the calibration of all quality relevant measuring instruments used in the production process. Only measuring instruments associated to the national-approved force standard may be used. The lab works independently and neutrally according to the criteria of the standard ISO/IEC 17025 "Allgemeine Anforderungen

an die Kompetenz von Prüf- und Kalibrierlaboratorien". The traceability to the national standard is also documented on works calibrations certificates. Force transducers can lose their measuring accuracy as a result of environmental impacts, e.g. overload, downfall or the like. A periodical calibration is advisable. Calibration intervals are determined by the user according to importance of the instrument and frequency of utilization.

## Works calibration

| Rated Load of a Sensor   |                       | 5N-50N  | 100N-200kN | >200kN-1MN | >1MN-2.5MN | >1MN-3MN |
|--|-----------------------|---------|------------|------------|------------|----------|
| <b>Rated load calibration</b>  |                       |         |            |            |            |          |
| - Testing of zero and rated load, one installation position  | compression           | XKE 221 | XKE 221    | XKE 241    | -          | XKE 251  |
| - no statement on linearity und hysteresis   | tension               | XKE 222 | XKE 222    | XKE 242    | XKE 252    | -        |
| - <u>Result:</u><br>Works calibration certificate calibration tag at the device                                | tension + compression | XKE 223 | XKE 223    | XKE 243    | XKE 253    | -        |
| <b>Works calibration</b>   |                       |         |            |            |            |          |
| - 5 force levels in one test series upward and one test series downward, one installation position.            | compression           | XKW 211 | XKW 221    | XKW 241    | -          | XKW 251  |
| - <u>Result:</u><br>Works calibration certificate with linearity and hysteresis, calibration tag at the device | tension               | XKW 212 | XKW 222    | XKW 242    | XKW 252    | -        |
|  | tension + compression | XKW 213 | XKW 223    | XKW 243    | XKW 253    | -        |

## A. S. T. - Testing Machines for Works Calibration

| Rating Range of the Machine | Tension/<br>Compression | Relative Measurement Uncertainty of Connection Referring to the Force |
|-----------------------------|-------------------------|---|
| 1 N up to 50N               | Tension + Compression   | $2,2 \cdot 10^{-4}$   |
| 200 N up to 2 kN            | Tension + Compression   | $5 \cdot 10^{-4}$   |
| 10 N up to 500 N            | Tension + Compression   | $1 \cdot 10^{-4}$   |
| 100 N up to 20 kN           | Tension + Compression   | $1 \cdot 10^{-4}$   |
| 1 kN up to 10 kN            | Tension + Compression   | $5 \cdot 10^{-4}$   |
| 2 kN up to 200 kN           | Tension + Compression   | $5 \cdot 10^{-4}$   |
| 3 kN up to 200 kN           | Tension + Compression   | $5 \cdot 10^{-4}$   |
| 10 kN up to 2,5 MN          | Tension + Compressionk  | $5 \cdot 10^{-4}$   |
| 2 kN up to 100kN            | Compression             | $5 \cdot 10^{-4}$   |
| 50 kN up to 600 kN          | Compression             | $5 \cdot 10^{-4}$   |
| 300 kN up to 3 MN           | Compression             | $1 \cdot 10^{-2}$   |
| 100 kN up to 1 MN           | Tension                 | $5 \cdot 10^{-3}$   |

### Please note:

**Adjustment:** means re-adjustment or scaling of a display unit or amplifier connected to a sensor. If required it will be carried out for A.S.T.-devices during calibration for free. If you wish to have a non A.S.T.-devices adjusted, state this on your order and provide the manual.

**Force introduction elements:** should always be sent along by the customer, in order to ensure the accuracy of measurement. Especially for tensile calibration, force introduction elements may have to be supplied by the customer or manufactured at A.S.T. to ensure proper installation into the machine.

**Output signals:** Please note, that we can read an indication, we can process a mV/V-Signal, a current loop signal or a voltage signal. Any other output signals require prior consultation. For force transducers without display we necessarily require a pin assignment for the wires or the plug.

### Options

| Type code | Description  |
|-----------|--|
| XKW 200   | 5 additional measuring points for works calibration (from 10N) |
| XKW 300   | Recording of an additional output signal                       |
| XKE 300   | Conformity assessment for calibrations                         |
| MSA 101   | Measurement systems analysis procedure 1                       |