AST Gruppe
Angewandte System Technik

Calibration Services in the accredited calibration laboratory

Application

- Comparing a measuring device with a standard

DAkkS
Deutsche Akkreditierungsstelle
D-K-17303-01-00

Special Features

- DAkkS-accreditation (ISO 17025) (DAkkS-German calibration service)
- Traceability to the national standard documented
- Service for Non-A.S.T. sensors and instruments

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 accredited calibration laboratory (certificate-no.: DKD-K-07801) for the measuring force was accredited by the "Akkreditierungsstelle des Deutschen Kalibrierdienstes" at A.S.T. The lab works independently and neutrally according to the criteria of the standard ISO/IEC 17025. The traceability to the national standard is also documented on works calibrations certificates. Force transducers can loose 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. A accredited calibration after ISO 376 is valid for max. 26 months.

	Calibration procedure according to			
	DIN EN ISO 376	Directive DKD-R 3-3		
		Procedure A	Procedure B *	Procedure C *
	5N - 2MN	2.5N - 2MN	2.5N - 2MN	2.5N - 2MN
Calibration step				
Number of force levels	10	5	5	5
Number of installation positions	3	3	1	1
Number of test series upward	4	4	2	1
Number of test series downward	2	2	2	1
Results				
Relative zero error (f_0)	●	●	●	●
Relative reversibility error (v) (Hysterese)	●	●	●	●
Relative repeatability with identical mounting position (b') (reproducibility)	●	●	●	○
Relative reproducibility in different mounting positions (b) (rotation)	●	●	○	○
Classification	●			
Display deviation or transfer coefficient		●	●	●

○ Determining the reproducibility and repeatability of present calibration certificate according to ISO376 or DKD-R 3-3 procedure A

* **Requirements for the selection:**
Force transducers and force measurement devices, which are adjusted for the first time, must be calibrated according to the DIN EN ISO 376 or after the directive DKD-R 3-3 calibration procedure A .
This enables subsequent simplified calibration procedures (B, C) to obtain the parameters (reproducibility, repeatability) which cannot be determined from measurements, from an already existing calibration certificate (according to ISO 376 or DKD R 3-3 procedure A).

Measuring Range of the Machines	Machine Type	Tension/ Compression	Achievable class of measuring instrument according to DIN EN ISO 376
0.5 up to 50N	Dead weight	T + C	00
10N up to 500N	Dead weight	T + C	00
100N up to 20kN	Dead weight	T + C	00
2kN up to 200kN	Dead weight/Lever	T + C	1
20kN up to 2MN	Electro-mechanical	T + C	1

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.

➢ For requirements deviating from ISO 376, please contact us!

Order Example

Calibration	Loading direction	5N - 50N	100N - 500N	1kN - 20kN	>20kN - 200kN	>200kN - 500kN	>500kN - 2MN
DIN EN ISO 376	Compression	XKD 221.1	XKD 221.2	XKD 221.3	XKD 221.4	XKD 221.5	XKD 221.6
	Tension	XKD 222.1	XKD 222.2	XKD 222.3	XKD 222.4	XKD 222.5	XKD 222.6
	Comp. & Tension	XKD 223.1	XKD 223.2	XKD 223.3	XKD 223.4	XKD 223.5	XKD 223.6

Calibration	Loading direction	2.5N - 50N	>50N - 500N	>500N - 20kN	>20kN - 200kN	>200kN - 500kN	>500kN-2MN
DKD R 3-3 Procedure A	Compression	XKR 231.1	XKR 231.2	XKR 231.3	XKR 231.4	XKR 231.5	XKR 231.6
	Tension	XKR 232.1	XKR 232.2	XKR 232.3	XKR 232.4	XKR 232.5	XKR 232.6
	Comp. & Tension	XKR 233.1	XKR 233.2	XKR 233.3	XKR 233.4	XKR 233.5	XKR 233.6
DKD R 3-3 Procedure B	Compression	XKR 241.1	XKR 241.2	XKR 241.3	XKR 241.4	XKR 241.5	XKR 241.6
	Tension	XKR 242.1	XKR 242.2	XKR 242.3	XKR 242.4	XKR 242.5	XKR 242.6
	Comp. & Tension	XKR 243.1	XKR 243.2	XKR 243.3	XKR 243.4	XKR 243.5	XKR 243.6
DKD R 3-3 Procedure C	Compression	XKR 251.1	XKR 251.2	XKR 251.3	XKR 251.4	XKR 251.5	XKR 251.6
	Tension	XKR 252.1	XKR 252.2	XKR 252.3	XKR 252.4	XKR 252.5	XKR 252.6
	Comp. & Tension	XKR 253.1	XKR 253.2	XKR 253.3	XKR 253.4	XKR 253.5	XKR 253.6

Options

Type code	Description
XKD 301	Additional calibration certificate for further channel
XKE 300	Conformity assessment for calibrations
XKE 804	Calibration with external indicator