

# Deutsche Akkreditierungsstelle GmbH

## Annex to the Accreditation Certificate D-K-15106-01-00 according to DIN EN ISO/IEC 17025:2005

Period of validity: 2017-06-14 to 2022-06-13

Date of issue: 2017-06-14

Holder of certificate:

**GTM Testing und Metrology GmbH**  
**Philipp-Reis-Straße 4-6**  
**64404 Bickenbach**

Head:

Dipl.-Ing. Daniel Schwind

Deputy head:

Dipl.-Inform. Torsten Hahn

Accredited as calibration laboratory since: 1993-03-01

Calibration in the fields:

### **Mechanical quantities**

- Force \*)
- Torque \*)

### **Electrical quantities**

#### **DC and low frequency quantities**

- Voltage ratio

Within the measurands / calibration items marked with \*) , the calibration laboratory is permitted, without being required to inform and obtain prior approval from DAkkS, to use calibration standards or equivalent calibration procedures listed here with different issue dates.

The calibration laboratory maintains a current list of all calibration standards / equivalent calibration procedures within the flexible scope of accreditation.

**Annex to the accreditation certificate D-K-15106-01-00**

**Permanent Laboratory**

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Best measurement capability <sup>1)</sup>	Remarks
<b>Force <sup>*)</sup></b> Tensile and compression force	0.5 N to 100 N	DAKKS-DKD-R 3-3:2010	$1 \cdot 10^{-4}$	100-N Force Reference Standard Machine
	1 kN to 25 kN	DIN EN ISO 376:2011	$2 \cdot 10^{-4}$	25-kN Force Reference Standard Machine
	100 N to 5000 N	ASTM E74:2013	$1 \cdot 10^{-4}$	100-kN Force Reference Standard Machine
	5 kN to 100 kN	GTM-RL-003:10/2011	$2 \cdot 10^{-4}$	1.2-MN Force Reference Standard Machine
	20 kN to 1200 kN		$2 \cdot 10^{-4}$	10-MN Force Reference Standard Machine
	0.2 MN to 10 MN			
<b>Torque <sup>*)</sup></b> Torque transducer Torque transfer wrench	0.005 kN·m to 5 kN·m	DIN 51309:2005	$2 \cdot 10^{-4}$	
	0.2 kN·m to 2 kN·m	DAKKS-DKD-R 3-7:2003	$2 \cdot 10^{-4}$	
<b>Multi-component force and torque</b> Multi-component transducer	0.250 kN to 1200 kN 0.005 kN·m to 5 kN·m	AA032: Version 7 GTM-RL-001: 05/2007 GTM-RL-002: 03/2012	$5 \cdot 10^{-3}$	Measurement platforms; Wheel load sensors; Procedures for similar calibration objects must be validated
<b>DC and low frequency</b> Voltage ratio	± 2.5 mV/V Stepping: 0.1 mV/V; 0.2 mV/V to 2 mV/V in 0.2 mV/V steps; 2.5 mV/V	DC Bridge voltage: 5 V and 10 V	0.15 μV/V	Calibration of DMS-measurement amplifiers and indication devices
	± 2.5 mV/V Stepping: 0.1 mV/V; 0.2 mV/V to 2 mV/V in 0.2 mV/V steps 2.5 mV/V	Measurement frequency 4,8 kHz Bridge voltage: 2,5 V		
	± 2.5 mV/V Stepping: 0.1 mV/V; 0.2 mV/V to 2.4 mV/V in 0.2 mV/V steps 2.5 mV/V	Measurement frequency 225 Hz Bridge voltage: 5 V	0.03 μV/V	

<sup>1)</sup> The best measurement capabilities are stated according to DAKKS-DKD-3 (EA-4/02). These are expanded uncertainties of measurement with a coverage probability of 95 % and have a coverage factor of  $k = 2$  unless stated otherwise. Uncertainties without unit are relative uncertainties referring to the measurement value unless stated otherwise.

**Annex to the accreditation certificate D-K-15106-01-00**

**On-site Calibration**

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Best measurement capability <sup>1)</sup>	Remarks
<b>Force</b> Force measuring devices with reference force transducers	0.5 N to 10 MN	AA045: Version 7	$5 \cdot 10^{-4}$	Tension and compression force

**Abbreviations used:**

DAkKS-DKD-R Calibration Guideline of Deutsche Akkreditierungsstelle GmbH  
 AA, GTM-RL Work instruction (in-house)

<sup>1)</sup> The best measurement capabilities are stated according to DAkKS-DKD-3 (EA-4/02). These are expanded uncertainties of measurement with a coverage probability of 95 % and have a coverage factor of  $k = 2$  unless stated otherwise. Uncertainties without unit are relative uncertainties referring to the measurement value unless stated otherwise.