

Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-K-15141-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: 20.07.2020

Date of issue: 20.07.2020

Holder of certificate:

burster präzisionsmesstechnik gmbh & co kg
Talstraße 1-5, 76593 Gernsbach

Calibration in the fields:

Mechanical quantities

- **Force**
- **Pressure**
- **Torque**

Electrical quantities

DC and low frequency quantities

- **DC voltage**
- **DC current**
- **DC resistance**

Abbreviations used: see last page

*The certificate together with its annex reflects the status at the time of the date of issue. The current status of the scope of accreditation can be found in the database of accredited bodies of Deutsche Akkreditierungsstelle GmbH.
<https://www.dakks.de/en/content/accredited-bodies-dakks>*

Annex to the accreditation certificate D-K-15141-01-00

Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement ¹⁾	Remarks
DC voltage	10 μ V to 200 V		$(5 + 0.2 V/U) \cdot 10^{-6}$	U: measurement value
	1 V		$2 \cdot 10^{-6}$	
	1,02 V		$2 \cdot 10^{-6}$	
	10 V		$2 \cdot 10^{-6}$	
DC current	1 μ A to 100 mA		$10 \cdot 10^{-6}$	over 30 A only calibrations of current sources, not measurement instruments for DC current
	>100 mA to 1 A		$20 \cdot 10^{-6}$	
	>1 A to 10 A		$50 \cdot 10^{-6}$	
	>10 A to 500 A		$10 \cdot 10^{-5}$	
DC resistance	0,1 m Ω to <1 m Ω		$50 \cdot 10^{-6}$	
	1 m Ω to <10 Ω		$10 \cdot 10^{-6}$	
	10 Ω to 100 k Ω		$5 \cdot 10^{-6}$	
	>100 k Ω to 1 M Ω		$10 \cdot 10^{-6}$	
Force	10 N to 20 N	DIN EN ISO 376:2011 DKD-R 3-3:2018	$2 \cdot 10^{-4}$	100-N-Force-Reference Calibration Machine (RCM), compressive force
	30 N to 100 N		$1 \cdot 10^{-4}$	
	20 N to 40 N		$2 \cdot 10^{-4}$	200-N-Force-RCM, compressive force
	60 N to 200 N		$1 \cdot 10^{-4}$	
	50 N to 100 N		$2 \cdot 10^{-4}$	500-N-Force-RCM, compressive force
	150 N to 500 N		$1 \cdot 10^{-4}$	
	100 N to 200 N		$1 \cdot 10^{-3}$	2-kN-Force-RCM, compressive force
>200 N to 2 kN	$5 \cdot 10^{-4}$			
500 N to 2 kN	$1 \cdot 10^{-3}$	10-kN-Force-RCM, compressive force		
> 2 kN to 10 kN	$5 \cdot 10^{-4}$			
2 kN to 5 kN	$2 \cdot 10^{-3}$	50-kN-Force-RCM, compressive force		
> 5 kN to 50 kN	$1 \cdot 10^{-3}$			
Torque Torque transducer, Torque measuring chains	0.005 N·m to <0.01 N·m	DIN 51309:2005-12 VDI/VDE 2646	$2 \cdot 10^{-3}$	240 Nm-Torque-RCM counterclockwise torque, clockwise torque
	0.01 N·m to <0.1 N·m		$4 \cdot 10^{-4}$	
	≥ 0.1 N·m to <1 N·m		$2 \cdot 10^{-4}$	
	≥ 1 N·m to 240 N·m		$1 \cdot 10^{-4}$	

¹⁾ The expanded uncertainties according to EA-4/02 M:2013 are part of CMC and are the best measurement uncertainties within accreditation. They have a coverage probability of approximately 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.

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Pressure Absolute pressure p_{abs}	0.1 bar to 35 bar	DIN EN 837:1997 DKD-R 6-1:2014 EURAMET cg-17 version 2.0	$8 \cdot 10^{-5} \cdot p_{abs}$; but not < 0.5 mbar	Pressure medium: Gas
Gauge pressure p_e	0.0 bar to 34 bar		$8 \cdot 10^{-5} \cdot p_{abs}$; but not < 0.5 mbar	Pressure medium: Gas principle: $p_e = p_{abs} - p_{amb}$
	0.0 bar to 200 bar		$1.2 \cdot 10^{-4} \cdot p_{abs}$; but not < 15 mbar	Pressure medium: HFE 7200
	> 200 bar to 1400 bar		$1.2 \cdot 10^{-4} \cdot p_{abs}$; but not < 100 mbar	principle: $p_e = p_{abs} - p_{amb}$

Abbreviations used:

CMC	Calibration and measurement capabilities (Kalibrier- und Messmöglichkeiten)
DKD-R	Richtlinie des Deutschen Kalibrierdienstes (DKD), herausgegeben von der Physikalisch-Technischen Bundesanstalt
EURAMET	European Association of National Metrology Institutes
VDE	Verband der Elektrotechnik, Elektronik und Informationstechnik
VDI	Verein Deutscher Ingenieure

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