

Deutsche Akkreditierungsstelle

Annex to the Accreditation Certificate D-K-18446-01-01 according to DIN EN ISO/IEC 17025:2018

Valid from: 19.05.2026

Date of issue: 19.05.2026

This annex is part of the Accreditation Certificate D-K-18446-01-00.

Holder of the Accreditation Certificate:

Humanetics Europe GmbH
Im Breitspiel 6 A, 69126 Heidelberg

with the locations

Humanetics Europe GmbH
Airport Boulevard B210, 77836 Rheinmünster

Humanetics Europe GmbH
Knorrstraße 147, EG-351, 80788 München

The calibration laboratory meets the requirements of DIN EN ISO/IEC 17025:2018 to carry out the conformity assessment activities listed in this annex. The calibration laboratory meets additional legal and normative requirements, if applicable, including those in relevant sectoral schemes, provided that these are explicitly confirmed below.

The management system requirements of DIN EN ISO/IEC 17025 are written in the language relevant to the operations of calibration laboratories and they conform to the principles of DIN EN ISO 9001.

*This annex to the certificate was issued by the Deutsche Akkreditierungsstelle GmbH (DAkkS) and is digitally sealed.
This annex to the certificate is only valid together with the written accreditation certificate and reflects the status as indicated by the date of issue. The current status of any valid and surveyed accreditation can be found in the directory of accredited bodies maintained by Deutsche Akkreditierungsstelle GmbH (www.dakks.de).*

Abbreviations used: see last page

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Calibration in the fields:

Mechanical quantities

- **Force**
- **Acceleration**
- **Pressure**

Thermodynamic quantities**Temperature quantities**

- **Resistance thermometers**
- **Direct reading thermometers**
- **Temperature transmitters, data loggers**

Humidity quantities

- **Devices for relative humidity**

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.

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Annex to the Accreditation Certificate D-K-18446-01-01

Permanent laboratory, Rheinmünster location

Calibration and Measurement Capabilities (CMC)				
Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
Force* Force sensors (safety-belt)	500 N to 25 kN	ISO/TS 17242:2014-05	$1 \cdot 10^{-2}$	Traction force reference standard measuring device with reference transducer Analogue and digital sensors
Force transducer* (compression force)	0.05 kN to 0.5 kN	DKD-R 3-3:2024	$5 \cdot 10^{-3}$	500 N force reference standard
	0.1 kN to < 0.5 kN		$2 \cdot 10^{-2}$	5 kN force reference standard
	0.5 kN to 5 kN		$5 \cdot 10^{-3}$	
	0.5 kN to < 2 kN		$1 \cdot 10^{-2}$	25 kN force reference standard
	2 kN to 25 kN		$5 \cdot 10^{-3}$	
	6 kN to < 10 kN		$1 \cdot 10^{-2}$	100 kN force reference standard
	10 kN to 100 kN		$5 \cdot 10^{-3}$	
	50 kN to 600 kN		$5 \cdot 10^{-3}$	600 kN force reference standard
Force transducer * (traction force)	0.05 kN to 0.5 kN	DKD-R 3-3:2024	$5 \cdot 10^{-3}$	500 N force reference standard
	0.1 kN to < 0.5 kN		$2 \cdot 10^{-2}$	5 kN force reference standard
	0.5 kN to 5 kN		$5 \cdot 10^{-3}$	
	0.5 kN to < 2 kN		$1 \cdot 10^{-2}$	25 kN force reference standard
	2 kN to 25 kN		$5 \cdot 10^{-3}$	
Multi-component force and moment Multi-component transducer (ATD)	0.05 kN to 600 kN	KW-F05000:2024	$5 \cdot 10^{-3}$	Compression force reference standard with reference transducer Analogue and digital sensors
	2 N·m to 12000 N·m		$5 \cdot 10^{-3}$	
Force transducer (compression force)	0.05 kN to 600 kN		$5 \cdot 10^{-3}$	Force reference standard with reference transducer Analogue and digital sensors
Force transducer (traction force)	0.05 kN to 25 kN		$5 \cdot 10^{-3}$	

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Permanent laboratory, Rheinmünster location

Calibration and Measurement Capabilities (CMC)				
Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
Acceleration* Acceleration sensors *	200 m/s ² to 2000 m/s ²	Shock excitation DKD-R 3-1 page 2:2019	1.2 %	Analogue and digital sensors
	> 2000 m/s ² to 20000 m/s ²		1.5 %	
	5 m/s ² to 200 m/s ²	Sinusoidal excitation DKD-R 3-1 page 3:2020 10 Hz bis 5 kHz > 5 kHz bis 10 kHz	1.2 % / 1,0 ° 2.5 % / 1.5 °	Analogue and digital sensors Calibration result: complex transfer coefficient (analogue: amplitude/phase, digital: amplitude) and indication deviation
Angular velocity Angular velocity sensors	300°/s to 3500°/s	KW-AV0002:2024	0.5 %	Rotational via incremental encoder for left and right rotation Analogue and digital sensors
secondary, dynamic	8°/s to 5000°/s	KW-AV0005:2021 1 Hz to 200 Hz	1.5 % / 1.5°	Analogue and digital sensors Calibration result: complex transfer coefficient (analogue: amplitude/phase, digital: amplitude) and indication deviation

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Annex to the Accreditation Certificate D-K-18446-01-01
Permanent laboratory, Rheinmünster location

Calibration and Measurement Capabilities (CMC)				
Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
Pressure*	-0.9 bar to 1 bar	DKD-R 6-1:2014	$2.3 \text{ mbar} + 4.8 \cdot 10^{-4} \cdot p_e$	Pressure medium: Gas Analogue and digital sensors $p_e = p_{\text{abs}} - p_{\text{amb}}$
Negative and positive pressure p_e	>1 bar to 6 bar		$5.2 \text{ mbar} + 7.0 \cdot 10^{-4} \cdot p_e$	
Absolute pressure p_{abs}	0.1 bar to 2 bar		$1.8 \text{ mbar} + 4.4 \cdot 10^{-4} \cdot p_{\text{abs}}$	
	>2 bar to 7 bar		$4.4 \text{ mbar} + 7.0 \cdot 10^{-4} \cdot p_{\text{abs}}$	
Temperature* Resistance thermometers, direct reading thermometers, temperature transmitters and data loggers with resistance sensor	10 °C to 50 °C	DKD-R 5-1:2023 in temperature / humidity generator	0.15 K	Comparison with display of the temperature / humidity generator
Temperature indicators and simulators for base metal thermocouples	-50 °C to 500 °C	DKD-R 5-5:2018	0.2 K	Characteristic curve according to DIN EN 60584:2014
Relative humidity* Direct reading electric hygrometers, data loggers	10 % to 80 %	DKD-R 5-8:2019 in temperature / humidity generator Measurement in air Air temperature: 20 °C to 25 °C	3 %	Comparison with display of the temperature / humidity generator Measurement uncertainty expressed as absolute value of the relative humidity

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Permanent laboratory, München location

Calibration and Measurement Capabilities (CMC)				
Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
Acceleration* Acceleration sensors, accelerometer measurement chains	200 m/s ² to 2000 m/s ²	Shock excitation DKD-R 3-1 page 2: 2019	1.5 %	Analogue and digital sensors

Abbreviations used:

DIN	Deutsches Institut für Normung e.V. – German institute for standardization
EN	Europäische Norm – European Standard
IEC	International Electrotechnical Commission
ISO	International Organization for Standardisation
DKD-R	Richtlinie des Deutschen Kalibrierdienstes (DKD), herausgegeben von der Physikalisch-Technischen Bundesanstalt
KW	calibration procedure of the Humanetics Europe GmbH

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