

Deutsche Akkreditierungsstelle

Annex to the Accreditation Certificate D-K-20746-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: 17.05.2024

Date of issue: 17.05.2024

Holder of accreditation certificate:

ELLAB GmbH
An der Autobahn 5, 27404 Bockel

with the location

ELLAB GmbH
An der Autobahn 5, 27404 Bockel

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.

Calibration in the fields:

Thermodynamic quantities

Temperature quantities

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

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.

This certificate annex 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 given scope of accreditation can be found in the directory of accredited bodies maintained by Deutsche Akkreditierungsstelle GmbH at <https://www.dakks.de>.

Abbreviations used: see last page

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This document is a translation. The definitive version is the original German annex to the accreditation certificate.

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Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

| Measurement quantity / Calibration item | Range | Measurement conditions / procedure | Expanded uncertainty of measurement | Remarks |
|---|--------------------|--|-------------------------------------|---|
| Temperature Data loggers with resistance sensors | -196 °C | DKD-R 5-1:2018 in liquid Nitrogen | 35 mK | Comparison with standard resistance thermometer |
| | 0 °C | DKD-R 5-1:2018 in ice bath | 20 mK | |
| | -100 °C to 140 °C | DKD-R 5-1:2018 in dry block calibrator | 35 mK | |
| | > 140 °C to 240 °C | | 80 mK | |
| | > 240 °C to 400 °C | | 0.15 K | |
| | -90 °C to 140 °C | DKD-R 5-1:2018 in liquid bath | 25 mK | |
| Direct reading thermometers with resistance sensors | -196 °C | DKD-R 5-1:2018 in liquid Nitrogen, with compensation block | 18 mK | |
| | 0 °C | DKD-R 5-1:2018 in ice bath | 8 mK | |
| | -80 °C to < 0 °C | DKD-R 5-1:2018 in liquid bath, with compensation block | 12 mK | |
| | 0 °C to 250 °C | | 10 mK | |
| | > 250 °C to 420 °C | | 12 mK | |
| | -90 °C to 150 °C | DKD-R 5-1:2018 in liquid bath | 25 mK | |
| | -100 °C to -80 °C | DKD-R 5-1:2018 in dry block calibrator | 80 mK | |
| | > -80 °C to -40 °C | | 45 mK | |
| | > -40 °C to 150 °C | | 40 mK | |
| | > 150 °C to 240 °C | | 65 mK | |
| | > 240 °C to 420 °C | | 0.11 K | |
| Direct reading thermometers and data loggers with base metal thermocouple sensors | -196 °C | DKD-R 5-3:2018 in liquid Nitrogen | 0.20 K | |
| | 0 °C | DKD-R 5-3:2018 in ice bath | 0.20 K | |
| | -100 °C to 140 °C | DKD-R 5-3:2018 in dry block calibrator | 0.20 K | |
| | > 140 °C to 240 °C | | 0.25 K | |
| | > 240 °C to 400 °C | | 0.45 K | |
| | -90 °C to 150 °C | DKD-R 5-3:2018 in liquid bath | 0.20 K | |

Abbreviations used:

- CMC Calibration and measurement capabilities
 DKD-R Calibration Guideline of Deutscher Kalibrierdienst (DKD), published by Physikalisch-Technische Bundesanstalt (PTB)

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