Deutsche Akkreditierungsstelle

Annex to the Accreditation Certificate D-K-19516-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: **27.06.2023**

Date of issue: 27.06.2023

Holder of accreditation certificate:

Diehl Metering GmbH
Industriestraße 13, 91522 Ansbach

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 confirm generally with the principles of DIN EN ISO 9001.

Calibration in the fields:

Mechanical Quantities
Fluid Quantities
- **Volume of flowing liquids**

Thermodynamic Quantities
Thermal energy
- **Heat meters**

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.

Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
Volume of flowing liquids Water meters and flow sensors for heat meters DN 15 – 40 mm	0.001 m³ to 0.35 m³	V01-1 VA:2023-01, version 4 Static or dynamic weighing method Conversion via density in function of temperature	20 °C: 0.25 % 50 °C: 0.30 % 90 °C: 1.00 %	Temperature range: (20 °C, 50 °C resp. 90 °C) ± 5 °C Flow range: 0.006 m³/h to 20 m³/h
Water meters and flow sensors for heat meter DN 40 – 100 mm	0.001 m³ to 6.0 m³		20 °C: 0.25 % 50 °C: 0.30 % 90 °C: 1.00 %	Temperature range: (20 °C, 50 °C resp. 90 °C) ± 5 °C Flow range: 0.04 m³/h to 180 m³/h
Water meters and flow sensors for heat meter DN 50 – 200 mm	0.001 m³ to 10.0 m³		20 °C: 0.35 % 50 °C: 0.40 %	Temperature range: (20 °C resp. 50 °C) ± 5 °C Flow range: 0.04 m³/h to 180 m³/h
Heat meters Energy meters	3 K	E01-1 VA:2021-07, version 3 Simulation of temperature difference and volume	0.30 %	Simulation of temperature difference with resistors Best measurement uncertainty given without contribution of EUT because of resistors used for temperature simulation Temperature range for determination of the thermal energy: 1 °C to 200 °C
	10 K		0.16 %	
	50 K		0.11 %	
	> 100 K to 195 K		0.10 %	
Temperature sensors, absolute measurement	10 °C	T01-1 VA:2021-07, version 3 Measurement in thermostatic baths	14 mK	Calibration of single sensors Combination of flow and return flow sensors Best measurement uncertainty given without contribution of EUT because of the measuring system
	40 °C		16 mK	
	80 °C		31 mK	
	120 °C		51 mK	
	150 °C		74 mK	
Temperature sensors, differential measurement	3 K	T01-1 VA:2021-07, version 3 Temperature difference	23 mK	
	50 K		35 mK	
	80 K		54 mK	

Abbreviations used:

CMC	Calibration and measurement capabilities (Kalibrier- und Messmöglichkeiten)
DIN	Deutsches Institut für Normung e.V.
DN	Nominal diameter
EUT	Equipment under Test
xxx-1 VA	internal calibration procedure of Diehl Metering GmbH