Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-K-17060-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: 13.02.2020

Date of issue: 13.02.2020

Holder of certificate:

ifm prover gmbh Sensorik für die Prozeß- und Verfahrenstechnik
Waldesch 9, 88069 Tettnang

Calibration in the fields:

Thermodynamic quantities

Temperature quantities

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

Mechanical quantities

- **Pressure**

Fluid quantities

- **Gas flow rate**

Within the scope of accreditation 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.

Abbreviations used: see last page

Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement [1)]	Remarks
Temperature Resistance thermometers also direct reading or with measuring device or transmitter[*)]	-20 °C to 150 °C	circulated liquid bath, DKD-R 5-1:2018	0.1 K	Comparison with standard resistance thermometers in thermostatic baths
Pressure Negative and positive gauge pressure p_e[*)]	-1 bar to -0.03 bar	DKD-R 6-1:2014	$2 \cdot 10^{-4} \cdot p_e$; but not less than 20 µbar	Pressure medium: Gas
	0 bar; 0.015 bar to 1 bar			
Positive gauge pressure p_e[*)]	0 bar; 1 bar to 35 bar		$2 \cdot 10^{-4} \cdot p_e$; but not less than 750 µbar	Pressure medium: Fluids
	> 35 bar to 700 bar		$2 \cdot 10^{-4} \cdot p_e$; but not less than 15 mbar	
Gas flow rate Volume flow rate of flowing gases (standard volume flow)	0.05 m^3/h to < 1.5 m^3/h	KV-F001:2017-06	1.0 %	Calibration gas: dry air below 2.7 bar (absolute pressure). Devices with visual indicator and / or analogue output (current, voltage)
	1.5 m^3/h to 1000 m^3/h		0.60 %	
Mass flow rate of flowing gases	0.06 kg/h to < 1.9 kg/h		1.0 %	
	1.9 kg/h to 1200 kg/h		0.60 %	

Abbreviations used:

CMC	Calibration and measurement capabilities
DKD-R	Guideline of Deutscher Kalibrierdienst (DKD), published by Physikalisch-Technische Bundesanstalt
KV-F001	Procedure of ifm prover gmbh

[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.