

# Deutsche Akkreditierungsstelle GmbH

## Annex to the Accreditation Certificate D-K-15220-01-00 according to DIN EN ISO/IEC 17025:2018

**Valid from:** 09.03.2021

**Date of issue** 09.03.2021

Holder of certificate:

**Günther GmbH Temperaturmesstechnik  
Bauhofstraße 12, 90571 Schwaig**

Calibration in the fields:

**Thermodynamic quantities**

**Temperature quantities**

- Resistance thermometers
- Thermocouples
- Temperature indicators and simulators <sup>a)</sup>

<sup>a)</sup> also on-site calibrations

**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.**

*The management system requirements in DIN EN ISO/IEC 17025 are written in language relevant to operations of calibration laboratories and operate generally in accordance with the principles of DIN EN ISO 9001.*

*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-15220-01-00

**Permanent Laboratory**

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement <sup>1)</sup>	Remarks
<b>Temperature</b> Resistance thermometers	-20 °C to 100 °C	in temperature controlled liquid bath DKD-R 5-1:2018	0,1 K	Comparison with standard resistance thermometer interpolation of the characteristic curve according to DKD-R 5-6:2018
	-80 °C to -40 °C	in dry block calibrator DKD-R 5-1:2018	0,15 K	
	> -40 °C to 400 °C		0,10 K	
	> 400 °C to 600 °C		0,15 K	
Noble metal thermocouples	-20 °C to 100 °C	in temperature controlled liquid bath DKD-R 5-3:2018	0,6 K	Comparison with standard resistance thermometer interpolation of the characteristic curve according to DKD-R 5-6:2018
	-40 °C to 100 °C	in dry block calibrator DKD-R 5-3:2018	0,5 K	
	> 100 °C to 600 °C		0,4 K	
	> 600 °C to 1100 °C		5,6 K	Comparison with standard thermocouple interpolation of the characteristic curve according to DKD-R 5-6:2018
	> 1100 °C to 1300 °C		6,7 K	
	> 600 °C to 900 °C	in tube furnace DKD-R 5-3:2018	1,2 K	
	> 900 °C to 1300 °C		1,4 K	
	> 1300 °C to 1500 °C		2,5 K	
Base metal thermocouples	-20 °C to 100 °C	in temperature controlled liquid bath DKD-R 5-3:2018	0,5 K	Comparison with standard resistance thermometer interpolation of the characteristic curve according to DKD-R 5-6:2018
	-40 °C to 600 °C	in dry block calibrator DKD-R 5-3:2018	0,5 K	
	> 600 °C to 1100 °C		5,5 K	Comparison with standard thermocouple interpolation of the characteristic curve according to DKD-R 5-6:2018
	> 1100 °C to 1300 °C		6,7 K	
	> 600 °C to 900 °C	in tube furnace DKD-R 5-3:2018	1,2 K	
	> 900 °C to 1300 °C		1,5 K	

<sup>1)</sup> 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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**Permanent Laboratory**

**Calibration and Measurement Capabilities (CMC)**

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement <sup>1)</sup>	Remarks
Temperature indicators and simulators for resistance thermometers	-200 °C      850 °C	DKD-R 5-5:2018	0,25 K	Electrical simulation of the input variable
Temperature indicators and simulators for noble metal thermocouples	-50 °C      1820 °C	DKD-R 5-5:2018	1,0 K	Electrical simulation of the input variable with or without reference junction compensation
Temperature indicators and simulators for base metal thermocouples	-270 °C      1370 °C	DKD-R 5-5:2018	0,5 K	Electrical simulation of the input variable with or without reference junction compensation

**On-site Calibration**

**Calibration and Measurement Capabilities (CMC)**

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement <sup>1)</sup>	Remarks
Temperature indicators and simulators for resistance thermometers	-200 °C to      850 °C	DKD-R 5-5:2018	0,25 K	Electrical simulation of the input variable
Temperature indicators and simulators for noble metal thermocouples	-50 °C to      1820 °C	DKD-R 5-5:2018	1,0 K	Electrical simulation of the input variable with or without reference junction compensation
Temperature indicators and simulators for base metal thermocouples	-270 °C to      1370 °C	DKD-R 5-5:2018	0,5 K	Electrical simulation of the input variable with or without reference junction compensation

**Abbreviations used:**

- CMC              Calibration and measurement capabilities (Kalibrier- und Messmöglichkeiten)
- DKD-R          Calibration Guide of Deutscher Kalibrierdienst (DKD), published by the Physikalisch-Technischen Bundesanstalt

<sup>1)</sup> 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.