

Deutsche Akkreditierungsstelle

Annex to the Accreditation Certificate D-K-19566-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: 06.12.2023

Date of issue: 06.12.2023

Holder of accreditation certificate:

CETA Testsysteme GmbH
Marie-Curie-Straße 35-37, 40721 Hilden

with the location

CETA Testsysteme GmbH
Marie-Curie-Straße 35-37, 40721 Hilden

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.

Mechanical quantities

- **Pressure** ^{a)})

^{a)} also on-site calibration

Fluid Quantities

- **Gas flow rate** ^{a)}

Within the measurement quantities/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.

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.

Annex to the Accreditation Certificate D-K-19566-01-00

Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
Pressure * Negative and positive gauge pressure p_e	-1 bar to -0,1 bar	DKD-R 6-1: 2014	$30 \cdot 10^{-2}$ mbar	Pressure medium: Gas
	-0,1 bar to -0,07 bar		$10 \cdot 10^{-2}$ mbar	
	-0,07 bar to -0,01 bar		$50 \cdot 10^{-3}$ mbar	
	-0,01 bar to 0,03 bar		$3 \cdot 10^{-4} \cdot p_e$ but not lower than 3 μ bar	
	> 0,03 bar to 0,07 bar		$50 \cdot 10^{-3}$ mbar	
	> 0,07 bar to 0,1 bar		$10 \cdot 10^{-2}$ mbar	
	> 0,1 bar to 1,0 bar		$20 \cdot 10^{-2}$ mbar	
	> 1,0 bar to 10 bar		2 mbar	
	> 10 bar to 17 bar		8 mbar	
	> 17 bar to 30 bar		20 mbar	
	> 30 bar to 60 bar		30 mbar	
Absolute pressure p_{abs}	0,05 bar to 0,7 bar		2,5 mbar	
	0,7 bar to 1,3 bar		$20 \cdot 10^{-2}$ mbar	
	1,3 bar to 10 bar		2,5 mbar	
	10 bar to 40 bar		12 mbar	
Gas flow rate Volume flow rate dV/dt of flowing gases	0,1 ml/min to 0,5 ml/min	Calibration medium: Air calibration object upstream of the standards A-K 7.4-0 (Revision 2) A-K 7.4-2 (Revision 7)	3 %	Measuring devices with display in standard $p_n = 1\,000$ mbar $T_n = 20$ °C
	0,5 ml/min to 1 ml/min		2 %	
	1 ml/min to 220 l/min		1 %	
	220 l/min to 420 l/min	DIN EN ISO 20486:2018-05	1,5 %	
Helium leak rate q_{pv}	$1 \cdot 10^{-9}$ mbar · l/s to $1 \cdot 10^{-6}$ mbar · l/s		6 %	Temperature of the helium leak 23 °C operation A, B
Leak rate q in gases	$5 \cdot 10^{-3}$ mbar · l/s to $1 \cdot 10^{-6}$ mbar · l/s		3 %	Temperature of the leak 23 °C operation G

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On-site Calibration

Calibration and Measurement Capabilities (CMC)				
Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
Pressure * Negative and positive gauge pressure p_e	-1 bar to -0,1 bar	DKD-R 6-1: 2014	$30 \cdot 10^{-2}$ mbar	Pressure medium: Gas
	-0,1 bar to -0,07 bar		$10 \cdot 10^{-2}$ mbar	
	-0,07 bar to -0,005 bar		$50 \cdot 10^{-3}$ mbar	
	-0,005 bar to 0,005 bar		$10 \cdot 10^{-3}$ mbar	
	> 0,005 bar to 0,07 bar		$50 \cdot 10^{-3}$ mbar	
	> 0,07 bar to 0,1 bar		$10 \cdot 10^{-2}$ mbar	
	> 0,1 bar to 1,0 bar		$20 \cdot 10^{-2}$ mbar	Pressure medium: Gas
	> 1,0 bar to 10 bar		2,0 mbar	
	> 10 bar to 17 bar		8,0 mbar	
	> 17 bar to 30 bar		20 mbar	
	> 30 bar to 60 bar		30 mbar	
Absolute pressure p_{abs}	0,05 bar to 0,7 bar		2,5 mbar	
	0,7 bar to 1,3 bar		$20 \cdot 10^{-2}$ mbar	
	1,3 bar to 10 bar		2,5 mbar	
	10 bar to 40 bar		12 mbar	
Gas flow rate Volume flow rate dV/dt of flowing gases	0,1 ml/min to 0,5 ml/min	Calibration medium: Air calibration object upstream of the standards A-K 7.4-0 (Revision 2) A-K 7.4-2 (Revision 7)	3 %	Measuring devices with display in standard $p_n = 1\ 000$ mbar $T_n = 20\ ^\circ\text{C}$
	0,5 ml/min to 2 ml/min		2 %	
	2 ml/min to 200 l/min		1,5 %	
	200 l/min to 420 l/min		1,5 %	

Abbreviations used:

CMC	Calibration and measurement capabilities (Calibration and measurement options)
DKD-R	Guideline of Deutscher Kalibrierdienst (DKD), published by the Physikalisch-Technische Bundesanstalt
A-K X.X-X	Laboratory calibration instructions CETA Test systems GmbH

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