DAkkS
Deutsche
Akkreditierungsstelle

Accreditation

The Deutsche Akkreditierungsstelle attests with this **Accreditation Certificate** that

AIP GmbH & Co. KG
Hoyen 30, 87490 Haldenwang

operates a calibration laboratory that fulfills the requirements according to DIN EN ISO/IEC 17025:2018 for those conformity assessment activities specified in detail in the annexes listed below. This includes additional existing legal and normative requirements for the calibration laboratory including those in relevant sectoral schemes, provided that these are explicitly confirmed in the annexes listed below.

D-K-21076-01-01	**Valid from: 06.07.2026**
D-K-21076-01-02	**Valid from: 28.10.2024**

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.

This accreditation was issued in accordance with Art. 5 Para. 1 Sentence 2 of Regulation (EC) 765/2008, after an accreditation procedure was carried out in compliance with the minimum requirements of DIN EN ISO/IEC 17011 and on the basis of a review and decision of the appointed accreditation committees.

This accreditation certificate only applies in connection with the notice of 06.07.2026. It consists of this cover sheet, the reverse side of the cover sheet and the corresponding annex

Registration number of the accreditation certificate: **D-K-21076-01-00**

Berlin, 06.07.2026 Dipl.-Wirtsch.-Ing. (BA) Tim Harnisch | Head of Technical Unit

Translation issued: 06.07.2026

See notes overleaf

Deutsche Akkreditierungsstelle GmbH

Office Berlin
Spittelmarkt 10
10117 Berlin

The Deutsche Akkreditierungsstelle GmbH (DAkkS) is the entrusted national accreditation body of the Federal Republic of Germany according to § 8 section 1 AkkStelleG in conjunction with § 1 section 1 AkkStelleGBV. DAkkS is designated as the national accreditation authority by Germany according to Art. 4 Para. 4 of Regulation (EC) 765/2008 and clause 4.7 of DIN EN ISO/IEC 17000.

Pursuant to Art. 11 section 2 of Regulation (EC) 765/2008, the accreditation certificate shall be recognised as equivalent by the national authorities within the scope of this Regulation as well as by the WTO member states that have committed themselves in bilateral or multilateral mutual agreements to recognise the certificates of accreditation bodies that are members of ILAC or IAF as equivalent.

DAkkS is a signatory to the multilateral agreements for mutual recognition of the European co-operation for Accreditation (EA), International Accreditation Forum (IAF) and International Laboratory Accreditation Co-operation (ILAC).

The up-to-date state of membership can be retrieved from the following websites:
EA: www.european-accreditation.org
ILAC: www.ilac.org
IAF: www.iaf.nu

Deutsche Akkreditierungsstelle

Annex to the Accreditation Certificate D-K-21076-01-01 according to DIN EN ISO/IEC 17025:2018

Valid from: **06.07.2026**

Date of issue: 06.07.2026

This annex is part of the Accreditation Certificate D-K-21076-01-00.

Holder of the Accreditation Certificate:

AIP GmbH & Co. KG
Hoyen 30, 87490 Haldenwang

with the location

AIP GmbH & Co. KG
Hoyen 30, 87490 Haldenwang

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.

Calibrations in the fields:

Mechanical quantities

- **Pressure** [a)]

Measuring instruments in the automotive industry

- **Exhaust gas measuring devices for compression ignition enginesn** [a)]
- **Roller test stands** [a)]
- **Flat-band test stands** [a)]

Mechanical quantities

Fluid quantities

- **Volume of flowing gases** [a)]
- **Volume of flowing liquids** [a)]

Thermodynamical quantities

Temperature quantities

- **Direct reading thermometers** [a)]

[a)] also on-site calibration

Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
Exhaust gas measuring devices for compression ignition engines Particle count concentration / Calibration of a condensation particle counter (CPC)	0 cm^{-3} bis 60 000 cm^{-3}	ISO 27891:2015	3,3 %	Comparison against a traceable reference for particle sizes of 10 nm bis 200 nm (The measurement range depends on the particle size.)
Particle count concentration	0 cm^{-3} to $1 \cdot 10^6$ cm^{-3}	Traffic bulletin 2021 book 11, Nr. 133 VA 00071564 index B	5,7 %	
Exhaust gas measuring devices for compression ignition engines Exhaust gas mea-suring devices for compression igniti on engines (PCRF)	Systemic dilution factors for particle sizes appart 10 nm to 200 nm	VA 00059854 index D	4,6 %	Comparison oft the particle number concentrations upstream and downstream of the dilution system (z. B. For example, for removers of volatile particles (VPR))

Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
Roller test stands longitudinal force	0,3 kN to 100 kN	VA 00045043 index D	$0{,}41 \cdot 10^{-3}$	Power input tot he drive motor via deadweight calibration
	0,05 kN to 2,5 kN	VA 00069289 index A	$0{,}59 \cdot 10^{-3}$	Force application on the roller surface with a reference force measurement device.
	0,5 kN to 10 kN		$1{,}1 \cdot 10^{-3}$	
	0,5 kN to 25 kN		$3{,}2 \cdot 10^{-3}$	
	5 kN to 120 kN		$15 \cdot 10^{-3}$	
	0,05 kN to 2,5 kN	VA 00069290 index A	$0{,}54 \cdot 10^{-3}$	Power input tot he drive motor via a reference force measurement device.
	0,5 kN to 10 kN		$0{,}86 \cdot 10^{-3}$	
	0,5 kN to 25 kN		$2{,}6 \cdot 10^{-3}$	
	5 kN to 120 kN		$12 \cdot 10^{-3}$	
Flat-band test stands Wheel contact area (x-power)	0,01 kN to 10 kN	VA 00069287 index A	$0{,}10 \cdot 10^{-3}$	Deadweight calibration
	0,05 kN to 2,5 kN	VA 00044451 index A	$0{,}47 \cdot 10^{-3}$	Reference force measurement device
	0,5 kN to 10 kN		$0{,}60 \cdot 10^{-3}$	
	0,5 kN to 25 kN		$2{,}7 \cdot 10^{-3}$	
	5 kN to 120 kN		$8{,}5 \cdot 10^{-3}$	
Temperature Direct reading thermometers with resistance sensor	–30 °C to 155°C	DKD-R 5-1:2023 in the block calibrator	0,27 K	Comparison with block calibrator as standard
	> 150 °C to 300 °C		0,32 K	
Direct reading thermometers with non-precious metal thermocouple sensor	30 °C to 300 °C	DKD-R 5-3:2018 in the block calibrator	0,7 K	
	> 300 °C to 600 °C		1,3 K	
	> 600 °C to 700 °C		1,9 K	
Gas low rate Volume flow rate	> 8,0 l/min to 100 l/min 0,1 m³/min to 18 m³/min	VA 00087859 index A Laminar Flow Elements	0,35 %	Measuring instrument: Atmospheric air
Mass flow rate	> 9,63 g/min to 120 g/min 0,120 kg/min to 21,7 kg/min		0,35 %	

Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
Pressure Absolute pressure p_{abs}	0,035 bar to 2,0 bar	DKD-R 6-1:2024	$1{,}7 \cdot 10^{-5} \cdot p_{abs} + 55$ µbar	Pressure medium: gas $p_{abs} = p_e + p_{amb}$
negativ and positiv gauge pressure p_e	-1,0 bar to 1,2 bar		$1{,}2 \cdot 10^{-5} \cdot p_e + 98$ µbar	

On-site Calibration

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
Exhaust gas measuring devices for compression ignition engines Particle number concentration	0 cm^{-3} to $1 \cdot 10^6$ cm^{-3}	Traffic bulletin 2021 book 11, Nr. 133 VA 00071564 index B	5,7 %	
Roller test stands longitudinal force	0,3 kN to 100 kN	VA 00045043 index D	$0{,}41 \cdot 10^{-3}$	
	0,05 kN to 2,5 kN	VA 00069289 index A	$0{,}59 \cdot 10^{-3}$	
	0,5 kN to 10 kN		$1{,}1 \cdot 10^{-3}$	
	0,5 kN to 25 kN		$3{,}2 \cdot 10^{-3}$	
	5 kN to 120 kN		$15 \cdot 10^{-3}$	
	0,05 kN to 2,5 kN	VA 00069290 index A	$0{,}54 \cdot 10^{-3}$	
	0,5 kN to 10 kN		$0{,}86 \cdot 10^{-3}$	
	0,5 kN to 25 kN		$2{,}6 \cdot 10^{-3}$	
	5 kN to 120 kN		$12 \cdot 10^{-3}$	
Flat-band testing stands Wheel contact area (x-power)	0,01 kN to 10 kN	VA 00069287 index A	$0{,}1 \cdot 10^{-3}$	
	0,05 kN to 2,5 kN	VA 00044451 index A	$0{,}47 \cdot 10^{-3}$	
	0,5 kN to 10 kN		$0{,}60 \cdot 10^{-3}$	
	0,5 kN to 25 kN		$2{,}7 \cdot 10^{-3}$	
	5 kN to 120 kN		$8{,}5 \cdot 10^{-3}$	

On-site Calibration

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
Temperature Direct reading thermometers with resistance sensor	–30 °C to 155°C	DKD-R 5-1:2023 in the block calibrator	0,27 K	Comparison with Block calibrator as standard
	> 155 °C to 300 °C		0,32 K	
Direct reading thermometers with non-precious metal thermocouple sensor	30 °C to 300 °C	DKD-R 5-3:2018 in the block calibrator	0,7 K	
	> 300 °C to 600 °C		1,3 K	
	> 600 °C to 700 °C		1,9 K	
Gas flow rate Volume flow rate	> 8,0 l/min to 100 l/min 0,1 m³/min to 18 m³/min	VA 00087859 index A Laminar Flow Elements	0,35 %	Measuring instrument: atmospheric air
Mass flow rate	> 9,63 g/min to 120 g/min 0,120 kg/min to 21,7 kg/min		0,35 %	
Pressure Absolute pressure p_{abs}	0,035 bar to 2,0 bar	DKD-R 6-1:2024	$1{,}7 \cdot 10^{-5} \cdot p_{abs} + 55$ µbar	Pressure medium: gas $p_{abs} = p_e + p_{amb}$
negative and positive gauge pressure p_e	-1,0 bar to 1,2 bar		$1{,}2 \cdot 10^{-5} \cdot p_e + 98$ µbar	

Abbreviations used:

DIN	Deutsches Institut für Normung e.V. – German institute for standardization
EN	Europäische Norm – European Standard
IEC	International Electrotechnical Commission
ISO	International Organization for Standardisation
CMC	Calibration and measurement capabilities (Calibration and measurement options)
VA 000xxxxx	Internal procedural guidelines oft he calibration laboratory AIP GmbH & Co. KG
DKD-R	Guideline oft he German Calibratin Service (DKD), Published by the Physikalisch-Technische Bundesanstalt

Deutsche Akkreditierungsstelle

Annex to the Accreditation Certificate D-K-21076-01-02 according to DIN EN ISO/IEC 17025:2018

Valid from: **28.10.2024**

Date of issue: 06.07.2026

This annex is part of the Accreditation Certificate D-K-21076-01-00.

Holder of the Accreditation Certificate:

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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.

Calibrations in the fields:

Electrical quantities
Time and frequency
- **Frequency**
- **Time interval**

This annex to the certificate was issued by the Deutsche Akkreditierungsstelle GmbH (DAkkS) and is digitally sealed.
This annex to the certificate 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 valid and surveyed accreditation can be found in the directory of accredited bodies maintained by Deutsche Akkreditierungsstelle GmbH (www.dakks.de).

Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
Rotational speed of chassis dynamometers	1 min^{-1} to 10000 min^{-1}	200 mm ≤ d < 600 mm AA 00044931: Rev. G	0,013 min^{-1} + 2,3 · 10^{-5} · n	d = average roller diameter n = rotational speed
		600 mm ≤ d < 1000 mm AA 00044931: Rev. G	0,0070 min^{-1} + 2,2 · 10^{-5} · n	
		1000 mm ≤ d ≤ 3600 mm AA 00044931: Rev. G	0,0064 min^{-1} + 2,1 · 10^{-5} · n	
Rotational speed of air stream fans	10 min^{-1} to 3000 min^{-1}	AA 00048989: Rev. D	0,68 min^{-1} + 1,1 · 10^{-3} · n	n = rotational speed
Time interval t	0,001 s to 1000 s		2,5 · 10^{-6} · t + 1,3 ms	t in s

On-site Calibration

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
Rotational speed of chassis dynamometers	1 min^{-1} to 10000 min^{-1}	200 mm ≤ d < 600 mm AA 00044931: Rev. G	0,013 min^{-1} + 2,3 · 10^{-5} · n	d = average roller diameter n = rotational speed
		600 mm ≤ d < 1000 mm AA 00044931: Rev. G	0,0070 min^{-1} + 2,2 · 10^{-5} · n	
		1000 mm ≤ d ≤ 3600 mm AA 00044931: Rev. G	0,0064 min^{-1} + 2,1 · 10^{-5} · n	
Rotational speed of air stream fans	10 min^{-1} to 3000 min^{-1}	AA 00048989: Rev. D	0,68 min^{-1} + 1,1 · 10^{-3} · n	n = rotational speed
Time interval t	0,001 to 1000 s		2,5 · 10^{-6} · t + 1,3 ms	t in s

Abbreviations used:

DIN	Deutsches Institut für Normung e.V. – German institute for standardization
EN	Europäische Norm – European Standard
IEC	International Electrotechnical Commission
ISO	International Organization for Standardisation
CMC	Calibration and measurement capabilities (Kalibrier- und Messmöglichkeiten)
AA	in-house procedure of the calibration laboratory AIP GmbH & Co. KG