DAkkS
Deutsche
Akkreditierungsstelle

Accreditation

The Deutsche Akkreditierungsstelle attests with this **Accreditation Certificate** that the calibration laboratory

Baker Hughes Digital Solutions GmbH
Robert-Bosch-Straße 3, 50354 Hürth

meets the requirements according to DIN EN ISO/IEC 17025:2018 for the conformity assessment activities listed in the annex to this certificate. This includes additional existing legal and normative requirements for the calibration laboratory, including those in relevant sectoral schemes, provided they are explicitly confirmed in the annex to this certificate.

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 notices of 07.02.2025 with accreditation number D-K-15178-03.
It consists of this cover sheet, the reverse side of the cover sheet and the following annex with a total of 4 pages.

Registration number of the accreditation certificate: **D-K-15178-03-00**

Berlin, 07.02.2025 — Dr. Florian Witt, Head of Technical Unit

Translation issued: 17.03.2025 — Dr. Florian Witt, Head of Technical Unit

The certificate together with the annex 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 (www.dakks.de).

This document is a translation. The definitive version is the original German accreditation certificate.

See notes overleaf

Deutsche Akkreditierungsstelle GmbH

Office Berlin
Spittelmarkt 10
10117 Berlin

Office Frankfurt am Main
Europa-Allee 52
60327 Frankfurt am Main

Office Braunschweig
Bundesallee 100
38116 Braunschweig

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

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Annex to the Accreditation Certificate D-K-15178-03-00 according to DIN EN ISO/IEC 17025:2018

Valid from: **07.02.2025**

Date of issue: 17.03.2025

Holder of accreditation certificate:

Baker Hughes Digital Solutions GmbH
Robert-Bosch-Straße 3, 50354 Hürth

with the location

Baker Hughes Digital Solutions GmbH
Robert-Bosch-Straße 3, 50354 Hürth

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:

Dimensional quantities
Length
- **Length measuring devices** [a)]

[a)] **also on-site calibration**

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.

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.

Permanentes Laboratorium

Kalibrier- und Messmöglichkeiten (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
Ultrasonic Thickness Measurement Devices		EN 15317-01:2014 group 2		
Transmitter				
Rise time/pulse width	10 ns to 2500 ns		0.23 ns	
Voltage	10 V to 450 V		0.1 %	
Length				
Wall thicknesses	0.2 mm to 300 mm		0.02 mm	
Wall thickness Resolution	0.05 mm to 0.1 mm		0.01 mm	
Ultrasonic Testing Devices		DIN EN ISO 22232-1:2021 group 2		
Transmitter				
Rise time/pulse width	2.5 ns to 5000 ns		0.23 ns	
Voltage	10 V to 450 V		0.1 %	
Receiver				
Frequency dependence	0.1 MHz to 30 MHz		0.2 kHz	
Equivalent input noise level	1 nV/√Hz to 200 nV/√Hz		1.6 %	
Linearity of the amplification	1 dB to 110 dB		$235 \cdot 10^{-6}$ dB	
Linearity of the vertical axis	0 % FSH to 100 % FSH		$23.84 \cdot 10^{-6}$ % FSH	FSH: Full screen height (total screen height)
Ultrasonic Phased Array Testing Devices		DIN EN ISO 18563-1:2022 group 2		
Transmitter				
Rise time/pulse width	2.5 ns to 5000 ns		0.23 ns	
Voltage	10 V to 450 V		0.1 %	
Linearity of the Delay	0 µs to 80 µs		0.2 ns	
Receiver				
Frequency dependence	0.1 MHz to 30 MHz		0.2 kHz	
Equivalent input noise level	1 nV/√Hz to 200 nV/√Hz		1.6 %	
Linearity of the amplification	1 dB to 110 dB		$235 \cdot 10^{-6}$ dB	
Channel Gain Variation	< 3 dB		$3 \cdot 10^{-3}$ dB	
Linearity of the vertical axis	0 % FSH to 100 % FSH		$23.84 \cdot 10^{-6}$ % FSH	FSH: Full screen height (total screen height)
Linearity of the Delay	0 µs to 80 µs		$2.88 \cdot 10^{-3}$ µs	

On-site calibration

Kalibrier- und Messmöglichkeiten (CMC)

Messgröße / Kalibriergegenstand	Messbereich / Messspanne	Messbedingungen / Verfahren	Erweiterte Messunsicherheit	Bemerkungen
Ultrasonic Testing Devices		DIN EN ISO 22232-1:2021 group 2		
Transmitter				
Rise time/pulse width	2.5 ns to 5000 ns		0.23 ns	
Voltage	10 V to 450 V		0.1 %	
Receiver				
Frequency dependence	0.1 MHz to 30 MHz		0.2 kHz	
Equivalent input noise level	1 nV/√Hz to 200 nV/√Hz		1.6 %	
Linearity of the amplification	1 dB to 110 dB		$235 \cdot 10^{-6}$ dB	
Linearity of the vertical axis	0 % FSH to 100 % FSH		$23.84 \cdot 10^{-6}$ % FSH	FSH: Full screen height (total screen height)
Ultrasonic Phased Array Testing Devices		DIN EN ISO 18563-1:2022 group 2		
Transmitter				
Rise time/pulse width	2.5 ns to 5000 ns		0.23 ns	
Voltage	10 V to 450 V		0.1 %	
Linearity of the Delay	0 µs to 80 µs		0.2 ns	
Receiver				
Frequency dependence	0.1 MHz to 30 MHz		0.2 kHz	
Equivalent input noise level	1 nV/√Hz to 200 nV/√Hz		1.6 %	
Linearity of the amplification	1 dB to 110 dB		$235 \cdot 10^{-6}$ dB	
Channel Gain Variation	< 3 dB		$3 \cdot 10^{-3}$ dB	
Linearity of the vertical axis	0 % FSH to 100 % FSH		$23.84 \cdot 10^{-6}$ % FSH	FSH: Full screen height (total screen height)
Linearity of the Delay	0 µs to 80 µs		$2.88 \cdot 10^{-3}$ µs	

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

Valid from: 07.02.2025
Date of issue: 17.03.2025