DAkkS
Deutsche
Akkreditierungsstelle

Accreditation

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

Klingelnberg GmbH
Peterstraße 45, 42449 Hückeswagen

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 confirm generally with 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 18.03.2024 with accreditation number D-K-21339-01.
It consists of this cover sheet, the reverse side of the cover sheet and the following annex with a total of 6 pages.

Registration number of the accreditation certificate: **D-K-21339-01-00**

Berlin, 18.03.2024 — Dr. Florian Witt, Head of Technical Unit

Translation issued: 18.03.2024 — 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

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10117 Berlin

Office Frankfurt am Main
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60327 Frankfurt am Main

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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-21339-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: **18.03.2024**

Date of issue: 18.03.2024

Holder of accreditation certificate:

Klingelnberg GmbH
Peterstraße 45, 42449 Hückeswagen

with the location

Klingelnberg GmbH
Peterstraße 45, 42449 Hückeswagen

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 confirm generally to the principles of DIN EN ISO 9001.

Calibrations in the fields:

Dimensional quantities
Length
– **Gear quantities** [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.

permanent laboratory

Calibration- and measuring capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
Gear measurement technology Coordinate and precision measuring machines with tactile probing for gearing and rotational - symmetrical test parts Calibration software "Stylus-Manager" and evaluation software "GINA" from Klingelnberg GmbH	The proven classification applies only to the measuring range covered by the gear standard ± 20 %	Calibration with tactile probing using gearing standards, classification of measuring systems (A, B, C, D) VDI/ VDE 2612 Bl.6:2022 VDI/ VDE 2612 Bl.1:2018		
	Reference diameter: d = 100 mm face width: b = 100 mm Helix angle: $\beta \leq 20°$	Metrological traceability by gear standards d = 100 mm ß = 0° ß = 15° r+l ß = 20° r+l b = 100 mm		
		$f_{H\alpha}$	10 µm	The specified measurement uncertainties apply examplary to the classification of measuring machine group A
		$f_{f\alpha}$	0.7 µm	
		F_{α}	1.2 µm	
		$f_{H\beta}$	1.1 µm	
		$f_{f\beta}$	0.8 µm	
		F_{β}	1.3 µm	
	Reference diameter: d = 200 mm face width: b = 100 mm Helix angle: $\beta \leq 20°$	d = 200 mm β = 0° β = 15° r+l β = 20° r+l b = 100 mm		
		$f_{H\alpha}$	1.1 µm	The specified measurement uncertainties apply examplary to the classification of measuring machine group A
		$f_{f\alpha}$	0.7 µm	
		F_{α}	1.3 µm	
		$f_{H\beta}$	1.1 µm	
		$f_{f\beta}$	0.8 µm	
		F_{β}	1.3 µm	

permanent laboratory

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Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
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Calibration software "Stylus-Manager" and evaluation software "GINA" from Klingelnberg GmbH	Reference diameter: $d \leq 350$ mm Helix angle: $\beta \geq 0°$ $M_n \geq 1$	Calibration according to: DIN EN ISO 10360-3:2000 and DIN EN ISO 10360-5:2020		
		f_p	0.7 µm	The specified measurement uncertainties apply examplary to the classification of measuring machine group A
		F_p	1.0 µm	
		F_r	1.2 µm	
	Reference diameter: $d \leq 350$ mm Helix angle: $\beta \geq 0°$ $M_n \geq 1$	Calibration according to: DIN ISO 1328-1:2018		
		M_{dk}	5.0 µm	The specified measurement uncertainties apply examplary to the classification of measuring machine group A The M_{dk} is calculated from the measured points of the pitch-deviation- measurement

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On-site calibrations

Calibration- and measuring capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
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	reference diameter: d = 100 mm face width: b = 100 mm Helix angle: $\beta \leq 20°$	Metrological traceability by gear standards d = 100 mm ß = 0° ß = 15° r+l ß = 20° r+l b = 100 mm		
		$f_{H\alpha}$	1,0 µm	The specified measurement uncertainties apply examplary to the classification of measuring machine group A
		$f_{f\alpha}$	0,7 µm	
		F_{α}	1,2 µm	
		$f_{H\beta}$	1,1 µm	
		$f_{f\beta}$	0,8 µm	
		F_{β}	1,3 µm	
	reference diameter: d = 200 mm face width: b = 100 mm Helix angle: $\beta \leq 20°$	d = 200 mm β = 0° β = 15° r+l β = 20° r+l b = 100 mm		
		$f_{H\alpha}$	1,1 µm	The specified measurement uncertainties apply examplary to the classification of measuring machine group A
		$f_{f\alpha}$	0,7 µm	
		F_{α}	1,3 µm	
		$f_{H\beta}$	1,1 µm	
		$f_{f\beta}$	0,8 µm	
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Calibration software "Stylus-Manager" and evaluation software "GINA" from Klingelnberg GmbH	Reference diameter: $d \leq 350$ mm Helix angle: $\beta \geq 0°$ $Mn \geq 1$	Calibration according to: DIN EN ISO 10360-3:2000 and DIN EN ISO 10360-5:2020		
		fp	0.7 µm	The specified measurement uncertainties apply examplary to the classification of measuring machine group A
		Fp	1.0 µm	
		Fr	1.2 µm	
	Reference diameter: $d \leq 350$ mm Helix angle: $\beta \geq 0°$ $M_n \geq 1$	Calibration according to: DIN ISO 1328-1:2018		
		M_{dk}	5.0 µm	The specified measurement uncertainties apply examplary to the classification of measuring machine group A The M_{dk} is calculated from the measured points of the pitch-deviation- measurement

Abbreviations used:

CMC	Calibration and measurement capabilities
DIN	German Institute for Standardization e.V.
VDE	Association of Electrical Engineering, Electronics and Information Technology e.V.
VDI	Association of German Engineers e.V.

Valid from: 18.03.2024
Date of issue: 18.03.2024

β	Helix angle
d	Reference diameter
F_α	Total profile deviation $f_{H\alpha}$
	Profile angle deviation
$f_{f\alpha}$	Profile form deviation
F_β	Total helix deviation
$f_{f\beta}$	Helix form deviation
$f_{H\beta}$	Helix slope deviation
F_p	Total pitch error
f_p	Single pitch deviation
F_r	Runout error
M_{dK}	Dimension over balls
M_n	Normal module
r+l	Right hand and left hand