

Deutsche Akkreditierungsstelle GmbH

Entrusted according to Section 8 subsection 1 AkkStelleG in connection with Section 1 subsection 1 AkkStelleGBV
Signatory to the Multilateral Agreements of EA, ILAC and IAF for Mutual Recognition

Accreditation



The Deutsche Akkreditierungsstelle GmbH attests that the calibration laboratory

Helmut Fischer GmbH
Institut für Elektronik und Messtechnik
Industriestraße 21, 71069 Sindelfingen

is competent under the terms of DIN EN ISO/IEC 17025:2018 to carry out calibrations in the following fields:

Mechanical quantities
– **Mass of unit area**


The accreditation certificate shall only apply in connection with the notice of accreditation of 16.12.2020 with the accreditation number D-K-15076-01. It comprises the cover sheet, the reverse side of the cover sheet and the following annex with a total of 2 pages.

Registration number of the certificate: **D-K-15076-01-00**

Berlin,
16.12.2020

Dr Heike Manke
Head of Division

Translation issued:
16.12.2020


Head of Division

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>

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

See notes overleaf.

Deutsche Akkreditierungsstelle GmbH

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The publication of extracts of the accreditation certificate is subject to the prior written approval by Deutsche Akkreditierungsstelle GmbH (DAkKS). Exempted is the unchanged form of separate disseminations of the cover sheet by the conformity assessment body mentioned overleaf.

No impression shall be made that the accreditation also extends to fields beyond the scope of accreditation attested by DAkKS.

The accreditation was granted pursuant to the Act on the Accreditation Body (AkkStelleG) of 31 July 2009 (Federal Law Gazette I p. 2625) and the Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products (Official Journal of the European Union L 218 of 9 July 2008, p. 30). 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 Cooperation (ILAC). The signatories to these agreements recognise each other's accreditations.

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 GmbH

Annex to the Accreditation Certificate D-K-15076-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: 16.12.2020

Date of issue 16.12.2020

Holder of certificate:

Helmut Fischer GmbH
Institut für Elektronik und Messtechnik
Industriestraße 21, 71069 Sindelfingen

Calibration in the fields:

Mechanical quantities
– **Mass of unit area**

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.

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<https://www.dakks.de/en/content/accredited-bodies-dakks>*

Abbreviations used: see last page

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Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement ¹⁾	Remarks
Mass per unit area m_A A) Mean value of mass per unit area of foils	0.2 mg/cm ² to 100 mg/cm ²	Measurement of: - edge length of foils 5 mm to 51 mm - mass of foil 100 µg to 5,1 g (gravimetric method)	$3.4 \cdot 10^{-5} \text{ mg/cm}^2$ $+1.9 \cdot 10^{-4} \cdot m_A$	m_A Measured mean value of mass per unit area Best measurement capability $U(m_A)$ for foils having a size of about 50 mm x 50 mm
B) Mass per unit area of single element layers (also multiple layers), as foils or on plane substrates	Single element layers: 0.002 mg/cm ² to 100 mg/cm ²	X-ray fluorescence method	$5 \cdot 10^{-3} \cdot m_A$	The determination of mass per unit area of single element layers, multiple layers and alloy layers refers to elements detectable with X-ray fluorescence analysis.
	Multiple layers:: 0.01 mg/cm ² to 100 mg/cm ²		$3.5 \cdot 10^{-2} \cdot m_A$	
C) Mass per unit area of alloy layers and its mass fraction, as foils or deposited on flat substrates	0.01 mg/cm ² to 100 mg/cm ² (Mass per unit area) 1 g/kg to 1000 g/kg (Mass fraction)		$3.5 \cdot 10^{-2} \cdot m_A$ 0.7 g/kg	
D) Mass fraction of all detectable elements of alloys with arbitrary thickness (flat, plane-parallel, homogeneous bulk samples)	1 g/kg to 1000 g/kg	X-ray fluorescence method	0.14 g/kg	The homogeneity is additionally measured and has to be taken into account for the uncertainty budget.

Abbreviations used:

CMC Calibration and measurement capabilities (Kalibrier- und Messmöglichkeiten)

¹⁾ 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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