

Accreditation



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

TAZ Servicetechnik GmbH & Co. KG
Joseph-von-Fraunhofer-Straße 4, 86551 Aichach

meets the minimum requirements according to DIN EN ISO/IEC 17025:2018 for the conformity assessment listed in the annex to this certificate. This includes additional existing legal and normative requirements, including those in relevant sectoral schemes.

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 02.12.2022 with accreditation number D-K-21088-01.

It consists of this cover sheet, the reverse side of the cover sheet and the following annex with a total of 8 pages.

Registration number of the accreditation certificate: **D-K-21088-01-00**

Berlin, 02.12.2022

Dipl.-Wirtsch.-Ing. (BA) Tim Harnisch
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

Deutsche Akkreditierungsstelle

Annex to the Accreditation Certificate D-K-21088-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: **02.12.2022**

Date of issue: 02.12.2022

Holder of accreditation certificate:

TAZ Servicetechnik GmbH & Co. KG
Joseph-von-Fraunhofer-Straße 4, 86551 Aichach

The calibration laboratory meets the minimal requirements of DIN EN ISO/IEC 17025:2018 and, if applicable, additional legal and normative requirements, including those in relevant sectoral schemes, in order to carry out the conformity assessment activities listed 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 with the principles of DIN EN ISO 9001.

Calibration in the fields:

Chemical quantities

Elemental analysis in solids^{a)}

- Optical emission spectrometrie: Al-, Ni-, Ti-, Zn-, Cu-, Fe-, Mg-base alloys

^{a)} also as 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 and On-site Calibration

Calibration and Measurement Capabilities (CMC)

Measured quantity/ Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
Analysis devices for elemental analysis in solids				Indirect calibration with certified traceable reference samples
Analyzers for optic emission spectrometry from Al-Base alloys				
Silicon (Si)	0.0024 % to 22 %	QMH_VA-01 (Revision 4, 02.2021)	0.0018 % to 0.6 %	But not smaller than $1,5 \cdot U_{ZRM}$ U_{ZRM} Calibration Uncertainty of the Reference sample
Iron (Fe)	0.045 % to 1.6 %		0.0012 % to 0.09 %	
Copper (Cu)	0.0015 % to 6.4 %		0.00015 % to 0.48 %	
Manganese (Mn)	0.0009 % to 2.1 %		0.00018 % to 0.15 %	
Magnesium (Mg)	0.0018 % to 9.9 %		0.003 % to 0.36 %	
Chrome (Cr)	0.00036 % to 0.28 %		0.00009 % to 0.06 %	
Nickel (Ni)	0.0009 % to 1.3 %		0.000195 % to 0.06 %	
Zinc (Zn)	0.0009 % to 12 %		0.00009 % to 0.78 %	
Titanium (Ti)	0.00054 % to 0.21 %		0.00015 % to 0.06 %	
Silver (Ag)	0.0066 % to 0.47 %		0.0009 % to 0.03 %	
Arsenic (As)	0.00065 % to 0.0031 %		0.00012 % to 0.0012 %	
Beryllium (Be)	0.00 % to 0.013 %		0.000006 % to 0.0018 %	
Bismuth (Bi)	0.00 % to 0.63 %		0.0003 % to 0.09 %	
Calcium (Ca)	0.00027 % to 0.0055 %		0.00006 % to 0.0012 %	
Cadmium (Cd)	0.00009 % to 0.48 %		0.00003 % to 0.09 %	
Cobalt (Co)	0.00009 % to 0.022 %		0.00006 % to 0.0024 %	
Gallium (Ga)	0.0072 % to 0.04 %		0.0003 % to 0.0063 %	
Lithium (Li)	0.000063 % to 1.3 %		0.000015 % to 0.006 %	
Sodium (Na)	0.00018 % to 0.0041 %		0.00012 % to 0.0006 %	
Phosphorus (P)	0.0014 % to 0.0064 %		0.00045 % to 0.00072 %	
Lead (Pb)	0.00072 % to 1.2 %		0.0003 % to 0.09 %	
Antimony (Sb)	0.00078 % to 0.028 %		0.0003 % to 0.003 %	
Tin (Sn)	0.00016 % to 0.33 %		0.00012 % to 0.06 %	
Strontium (Sr)	0.00018 % to 0.029 %		0.00015 % to 0.0024 %	
Vanadium (V)	0.0009 % to 0.11 %		0.00033 % to 0.0078 %	
Zirconium (Zr)	0.00099 % to 0.21 %		0.00012 % to 0.06 %	

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Annex to the Accreditation Certificate D-K-21088-01-00

Permanent Laboratory and On-site Calibration

Calibration and Measurement Capabilities (CMC)

Measured quantity/ Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
Analysis devices for elemental analysis in solids				Indirect calibration with certified traceable reference samples
Analyzers for optic emission spectrometry from Ni-Base alloys				
Aluminium (Al)	0.0081 % to 6.6 %	QMH_VA-01 (Revision 4, 02.2021)	0.003 % to 0.18 %	But not smaller than $1,5 \cdot U_{ZRM}$
Cobalt (Co)	0.02 % to 37 %		0.00135 % to 0.6 %	
Chromium (Cr)	0.054 % to 26 %		0.006 % to 0.36 %	
Copper (Cu)	0.0041 % to 35 %		0.0006 % to 0.18 %	
Iron (Fe)	0.063 % to 56 %		0.06 % to 0.6 %	
Manganese (Mn)	0,011 % to 1,4 %		0.00105 % to 0.12 %	
Molybdenum(Mo)	0.0054 % to 19 %		0.003 % to 0.3 %	
Niobium (Nb)	0.11 % to 5.8 %		0.03 % to 0.15 %	
Silicon (Si)	0.025 % to 1.8 %		0.0075 % to 0.24 %	
Titanium (Ti)	0.23 % to 1.6 %		0.006 % to 0.09 %	
Tungsten (W)	0.005 % to 4.7 %		0.0012 % to 0.15 %	
Boron (B)	0.018 % to 0.021 %		0.00024 % to 0.006 %	
Carbon (C)	0.0046 % to 0.29 %		0.00105 % to 0.018 %	
Nickel (Ni)	31 % to 80 %		0.045 % to 1.2 %	
Phosphorus (P)	0.00054 % to 0.022 %		0.0003 % to 0.009 %	
Lead (Pb)	0.000019 % to 0.00042 %		0.0000009 % to 0.00015 %	
Sulfur (S)	0.00054 % to 0.02 %		0.00015 % to 0.006 %	
Tin (Sn)	0.000099 % to 0.0022 %		0.00003 % to 0.0015 %	
Vanadium (V)	0.0086 % to 1.1 %		0.0021 % to 0.12 %	

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Permanent Laboratory and On-site Calibration

Calibration and Measurement Capabilities (CMC)

Measured quantity/ Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement			Remarks
Analysis devices for elemental analysis in solids						Indirect calibration with certified traceable reference samples
Analyzers for optic emission spectrometry from Ti-Base alloys		QMH_VA-01 (Revision 4, 02.2021)	0.0045 % to 0.24 %	But not smaller than $1,5 \cdot U_{ZRM}$	U_{ZRM} Calibration Uncertainty of the Reference sample	
Aluminium (Al)	0.036 % to 8.6 %		0.00225 % to 0.21 %			
Vanadium (V)	0.0018 % to 17 %		0.0012 % to 0.06 %			
Tin (Sn)	0.0017 % to 3.3 %		0.0003 % to 0.15 %			
Manganese (Mn)	0.00081 % to 7.3 %		0.0003 % to 0.09 %			
Molybdenum (Mo)	0.00054 % to 6.8 %		0.0006 % to 0.09 %			
Chromium (Cr)	0.0013 % to 4.3 %		0.00075 % to 0.06 %			
Zirconium (Zr)	0.00099 % to 4.5 %		0.0012 % to 0.03 %			
Copper (Cu)	0.0012 % to 0.51 %		0.0015 % to 0.06 %			
Silicon (Si)	0.0045 % to 0.52 %		0.0045 % to 0.15 %			
Iron (Fe)	0.04 % to 2.2 %		0.003 % to 0.03 %			
Oxygen (O)	0.06 % to 0.37 %		0.0006 % to 0.006 %			
Nitrogen (N)	0.0013 % to 0.023 %		0.0009 % to 0.015 %			
Carbon (C)	0.0045 % to 0.035 %		0.0012 % to 0.0066 %			
Nickel (Ni)	0.0018 % to 0.043 %		0.0003 % to 0.003 %			
Hydrogen (H)	0.0014 % to 0.015 %					

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Permanent Laboratory and On-site Calibration

Calibration and Measurement Capabilities (CMC)

Measured quantity/ Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement		Remarks
Analysis devices for elemental analysis in solids					Indirect calibration with certified traceable reference samples
Analyzers for optic emission spectrometry from Zn-Basislegierungen		QMH_VA-01 (Revision 4, 02.2021)	0.06 % to 0.18 %	But not smaller than $1,5 \cdot U_{ZRM}$	U_{ZRM} Calibration Uncertainty of the Reference sample
Aluminium (Al)	2.8 % to 5.7 %		0.000009 % to 0.0033 %		
Cadmium (Cd)	0.00005 % to 0.017 %		0.0006 % to 0.003 %		
Chrom (Cr)	0.00072 % to 0.043 %		0.000018 % to 0.03 %		
Copper (Cu)	0.00017 % to 1.7 %		0.000015 % to 0.009 %		
Iron (Fe)	0.0002 % to 0.11 %		0.0024 % to 0.006 %		
Magnesium (Mg)	0.0085 % to 0.1 %		0.0003 % to 0.003 %		
Mangan (Mn)	0.0015 % to 0.053 %		0.00006 % to 0.003 %		
Nickel (Ni)	0.00023 % to 0.052 %		0.00006 % to 0.0021 %		
Lead (Pb)	0.0013 % to 0.015 %		0.0003 % to 0.006 %		
Silicium (Si)	0.001 % to 0.086 %		0.00009 % to 0.003 %		
Tin (Sn)	0.00009 % to 0.013 %				

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Calibration and Measurement Capabilities (CMC)

Measured quantity/ Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement	Remarks
Analysis devices for elemental analysis in solids				Indirect calibration with certified traceable reference samples
Analyzers for optic emission spectrometry from Cu-Basislegierungen				
Silver (Ag)	0.00016 % to 0.063 %	QMH_VA-01 (Revision 4, 02.2021)	0.00003 % to 0.0054 %	But not smaller than $1,5 \cdot U_{ZRM}$
Aluminium (Al)	0.00019 % to 12 %		0.00006 % to 0.1419 %	
Arsenic (As)	0.0001 % to 0.17 %		0.000012 % to 0.012 %	
Beryllium (Be)	0.00009 % to 2 %		0.00009 % to 0.0333 %	
Bismut (Bi)	0.000048 % to 0.094 %		0.0000045 % to 0.012 %	
Carbon (C)	0.0018 % to 0.012 %		0.00009 % to 0.0117 %	
Cadmium (Cd)	0.000024 % to 0.02 %		0.000006 % to 0.0018 %	
Cobalt (Co)	0.000066 % to 0.24 %		0.0000105 % to 0.021 %	
Chromium (Cr)	0.00005 % to 0.092 %		0.000009 % to 0.006 %	
Copper (Cu)	52 % to 100 %		0.027 % to 0.9 %	
Iron (Fe)	0.00054 % to 4.4 %		0.00006 % to 0.1458 %	
Magnesium (Mg)	0.0013 % to 0.13 %		0.000075 % to 0.06 %	
Manganese (Mn)	0.000068 % to 4.1 %		0.000009 % to 0.15 %	
Nickel (Ni)	0.00015 % to 34 %		0.00003 % to 0.75 %	
Phosphorous (P)	0.00059 % to 0.57 %		0.000105 % to 0.03 %	
Lead (Pb)	0.00009 % to 10 %		0.00003 % to 0.336 %	
Sulfur (S)	0.00018 % to 0.05 %		0.00009 % to 0.0072 %	
Antimony (Sb)	0.000063 % to 0.39 %		0.000015 % to 0.0297 %	
Selenium (Se)	0.000054 % to 0.023 %		0.000015 % to 0.006 %	
Silicon (Si)	0.0017 % to 3.7 %		0.00045 % to 0.222 %	
Tin (Sn)	0.00039 % to 11 %		0.0000315 % to 0.315 %	
Tellurium (Te)	0.000055 % to 0.024 %		0.000009 % to 0.00105 %	
Titan (Ti)	0.0012 % to 0.073 %		0.000105 % to 0.0027 %	
Zinc (Zn)	0.00054 % to 44 %		0.000075 % to 0.3438 %	

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Permanent Laboratory and On-site Calibration

Calibration and Measurement Capabilities (CMC)

Measured quantity/ Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement		Remarks
Analysis devices for elemental analysis in solids					Indirect calibration with certified traceable reference samples
Analyzers for optic emission spectrometry from Fe-Base alloys					
Carbon (C)	0.0009 % to 4.8 %	QMH_VA-01 (Revision 4, 02.2021)	0.0003 % to 0.09 %	But not smaller than $1,5 \cdot U_{zRM}$	U_{zRM} Calibration Uncertainty of the Reference sample
Silicon (Si)	0.0009 % to 3.7 %		0.0012 % to 0.15 %		
Manganese (Mn)	0.0013 % to 21 %		0.0006 % to 0.27 %		
Phosphorous (P)	0.0012 % to 0.24 %		0.00045 % to 0.03 %		
Sulfur (S)	0.0002 % to 0.36 %		0.00009 % to 0.06 %		
Aluminium (Al)	0.00081 % to 5.9 %		0.0003 % to 0.06 %		
Arsenic (As)	0.00045 % to 0.11 %		0.0003 % to 0.015 %		
Boron (B)	0.00 % to 1.3 %		0.00015 % to 0.015 %		
Bismuth (Bi)	0.00 % to 0.014 %		0.000075 % to 0.0036 %		
Calcium (Ca)	0.000036 % to 0.0029 %		0.00003 % to 0.003 %		
Cerium (Ce)	0.0002 % to 0.14 %		0.00015 % to 0.012 %		
Cobalt (Co)	0.0011 % to 8.5 %		0.0003 % to 0.06 %		
Chromium (Cr)	0.0014 % to 34 %		0.0009 % to 0.33 %		
Copper (Cu)	0.00054 % to 4.5 %		0.0003 % to 0.18 %		
Lanthanum (La)	0.000063 % to 0.017 %		0.00003 % to 0.006 %		
Magnesium (Mg)	0.00014 % to 0.07 %		0.00003 % to 0.009 %		
Molybdenum (Mo)	0.0009 % to 6.8 %		0.0006 % to 0.12 %		
Nitrogen (N)	0.00063 % to 0.62 %		0.00015 % to 0.0213 %		
Niobium (Nb)	0.00036 % to 1.1 %		0.00015 % to 0.06 %		
Nickel (Ni)	0.0013 % to 34 %		0.0006 % to 0.3 %		
Oxygen (O)	0.0011 % to 0.04 %		0.0003 % to 0.009 %		
Lead (Pb)	0.000072 % to 0.31 %		0.00003 % to 0.06 %		
Antimony (Sb)	0.00036 % to 0.037 %		0.00012 % to 0.015 %		
Tin (Sn)	0.00099 % to 0.13 %		0.0003 % to 0.009 %		
Tantalum (Ta)	0.00 % to 0.22 %		0.0003 % to 0.03 %		
Titanium (Ti)	0.00 % to 2.2 %		0.00015 % to 0.06 %		
Vanadium (V)	0.00 % to 4.4 %		0.0006 to 0.09 %		

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Permanent Laboratory and On-site Calibration

Calibration and Measurement Capabilities (CMC)

Measured quantity/ Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement			Remarks
Analysis devices for elemental analysis in solids						Indirect calibration with certified traceable reference samples
Analyzers for optic emission spectrometry from Fe-Base alloys		QMH_VA-01 (Revision 4, 02.2021)	0.0003 % to 0.03 %	But not smaller than $1,5 \cdot U_{ZRM}$	U_{ZRM} Calibration Uncertainty of the Reference sample	
Tungsten (W)	0.00063 % to 1.4 %		0.0003 % to 0.03 %			
Zirconium (Zr)	0.00 % to 0.24 %		0.0003 % to 0.03 %			
Tin (Zn)	0.00027 % to 0.017 %		0.0003 % to 0.0036 %			

Permanent Laboratory and On-site Calibration

Calibration and Measurement Capabilities (CMC)

Measured quantity/ Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement			Remarks	
Analysis devices for elemental analysis in solids						Indirect calibration with certified traceable reference samples	
Analyzers for optic emission spectrometry from Mg-Base alloys		QMH_VA-01 (Revision 4, 02.2021)				U_{ZRM} Calibration Uncertainty of the Reference sample	
Aluminium (Al)	0.0011 % to 12 %		0.0015 % to 0.27 %	<i>jedoch nicht kleiner als $1,5 \cdot U_{ZRM}$</i>			
Copper (Cu)	0.0032 % to 3,2 %		0.0006 % to 0.12 %				
Iron (Fe)	0.0009 % to 0.011 %		0.0003 % to 0.006 %				
Manganese (Mn)	0.0048 % to 0.46 %		0.0015 % to 0.036 %				
Nickel (Ni)	0.00085 % to 0.022 %		0.00012 % to 0.003 %				
Silicon (Si)	0.013 % to 0.26 %		0.0039 % to 0.03 %				
Tin (Zn)	0.0061 % to 6.9 %		0.0006 % to 0.24 %				

Abbreviations used:

CMC Calibration and measurement capabilities (Kalibrier- und Messmöglichkeiten)

DIN Deutsches Institut für Normung e.V. – German institute for standardization

VA Internal calibration procedures TAZ Servicetechnik GmbH & Co. KG

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