DAkkS
Deutsche
Akkreditierungsstelle

Accreditation

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

Element Materials Technology Hamburg GmbH
Tempowerkring 11, 21079 Hamburg

operates a testing 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 testing laboratory including those in relevant sectoral schemes, provided that these are explicitly confirmed in the annexes listed below.

D-PL-11166-01-01 **Valid from: 28.04.2026**
D-PL-11166-01-02 **Valid from: 22.06.2026**

The management system requirements of DIN EN ISO/IEC 17025 are written in the language relevant to the operations of testing 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 22.06.2026. It consists of this cover sheet, the reverse side of the cover sheet and the corresponding annex

Registration number of the accreditation certificate: **D-PL-11166-01-00**

Berlin, 22.06.2026 Dr. Dirk Tscharntke | Head of Technical Unit

Translation issued: 22.06.2026

This accreditation certificate was issued by the Deutsche Akkreditierungsstelle GmbH (DAkkS). It is digitally sealed and valid without signature. It 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).

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

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

This accreditation certificate is the property of the German Accreditation Body

Deutsche Akkreditierungsstelle

Annex to the Accreditation Certificate D-PL-11166-01-01 according to DIN EN ISO/IEC 17025:2018

Valid from: **28.04.2026**

Date of issue: 28.04.2026

This annex is part of the Accreditation Certificate D-PL-11166-01-00.

Holder of the Accreditation Certificate:

Element Materials Technology Hamburg GmbH
Tempowerkring 11, 21079 Hamburg

with the locations

Element Materials Technology Hamburg GmbH
Tempowerkring 11, 21079 Hamburg

Element Materials Technology Hamburg GmbH
Lahnstraße 26, 45478 Mülheim a. d. Ruhr

The testing laboratory meets the requirements of DIN EN ISO/IEC 17025:2018 to carry out the conformity assessment activities listed in this annex. The testing 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 testing laboratories and they conform to the principles of DIN EN ISO 9001.

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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).

Tests in the fields:

mechanical testing of metallic materials, metallographic testing, selected corrosion tests, analysis of chemical composition of metals such as steel and alloys using stationary and transportable vacuum emission spectrometers, determination of electrical conductivity of alloys by eddy current method and determination of density of metals

Flexible Scope of accreditation:

Within the indicated test areas marked with [Flex A] the testing laboratory is permitted to use standardised or equivalent test methods listed here with different issue dates without being required to prior inform and obtain approval from DAkkS.

The testing laboratory has an up-to-date list of all test methods within the flexible scope of accreditation. The list is publicly available on the website of the testing laboratory.

The test methods are marked with the following symbols indicating where they are performed:

MH = Mülheim HH = Hamburg

1 Mechanical Tests [Flex A]

1.1 Hardness Tests

ASTM E10-23 2023	Standard Test Method for Brinell Hardness of Metallic Materials	MH, HH
ASTM E18-24 2024	Standard Test Methods for Rockwell Hardness of Metallic Materials	MH, HH
ASTM E92-23 2023	Standard Test Methods for Vickers Hardness and Knoop Hardness of Metallic Materials	MH
ASTM E384-22 2022	Standard Test Method for Microindentation Hardness of Materials	MH
DIN EN ISO 642 2000-01	Steel – Hardenability test by end quenching (Jominy test)	MH
DIN EN ISO 2639 2003-04	Steels – Determination and verification of the depth of carburized and hardened cases	MH, HH
DIN EN ISO 6506-1 2015-02	Metallic materials – Brinell hardness test – Part 1: Test method	MH, HH

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DIN EN ISO 6507-1 2024-01	Metallic materials – Vickers hardness test – Part 1: Test method	MH, HH
DIN EN ISO 6508-1 2024-04	Metallic materials – Rockwell hardness test – Part 1: Test method	MH, HH
DIN EN ISO 9015-1 2011-05	Destructive tests on welds in metallic materials – Hardness testing – Part 1: Hardness test on arc welded joints	MH, HH
DIN EN ISO 18203 2022-07	Steel – Determination of the thickness of surface-hardened layers	MH, HH
DIN EN 10328 2005-04	Iron and steel – Determination of the conventional depth of hardening after surface heating	MH, HH
DIN 50190-3 1979-03	Hardness depth of heat-treated parts; determination of the effective depth of hardening after nitriding	MH, HH

1.2 Tensile Tests

ASTM A770/A770M -03(2018) 2003	Standard Specification for Through-Thickness Tension Testing of Steel Plates for Special Applications	MH
ASTM E8/E8M-24 2024	Standard Test Methods for Tension Testing of Metallic Materials	MH, HH
ASTM E21-20 2020	Standard Test Methods for Elevated Temperature Tension Tests of Metallic Materials	MH, HH
ASTM B557-15(2023) 2015	Standard Test Methods for Tension Testing Wrought and Cast Aluminum- and Magnesium-Alloy Products	MH
DIN EN ISO 4136 2022-09	Destructive tests on welds in metallic materials – Transverse tensile test	MH, HH
DIN EN ISO 5178 2019-05	Destructive tests on welds in metallic materials – Longitudinal tensile test on weld metal in fusion welded joints	MH, HH
DIN EN ISO 6892-1 2020-06	Metallic materials – Tensile testing – Part 1: Method of test at room temperature	MH, HH
DIN EN ISO 6892-2 2018-09	Metallic materials – Tensile testing – Part 2: Method of test at elevated temperature	MH, HH

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DIN EN 2002-001 2006-11	Aerospace series – Metallic materials – Test methods – Part 1: Tensile testing at ambient temperature	MH
DIN EN 10164 2018-12	Steel products with improved deformation properties perpendicular to the surface of the product – Technical delivery conditions	MH, HH

1.3 Bend Tests

ASTM E190-21 2021	Standard Test Method for Guided Bend Test for Ductility of Welds	MH
DIN EN ISO 5173 2023-03	Destructive tests on welds in metallic materials – Bend tests	MH, HH
DIN EN ISO 7438 2021-03	Metallic materials – Bend test	MH, HH
DIN EN ISO 9017 2018-04	Destructive tests on welds in metallic materials – Fracture test	MH, HH
SEP 1390 1996-07	Weld bead bend test	MH, HH

1.4 Notched Bar Impact-Bending Tests

ASTM E23-24 2024	Test Methods for Notched Bar Impact Testing of Metallic Materials	MH, HH
DIN EN ISO 148-1 2017-05	Metallic materials – Charpy pendulum impact test – Part 1: Test method	MH, HH
DIN EN ISO 9016 2022-07	Destructive tests on welds in metallic materials – Impact tests – Test specimen location, notch orientation and examination	MH, HH

1.5 Tests on Tubes

DIN EN ISO 8492 2014-03	Metallic materials – Tube – Flattening test	MH, HH
DIN EN ISO 8496 2014-03	Metallic materials – Tube – Ring tensile test	MH

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1.6 Tests on Fasteners

DIN EN ISO 898-1 2013-05	Mechanical properties of fasteners made of carbon steel and alloy steel – Part 1: Bolts, screws and studs with specified property classes – Coarse thread and fine pitch thread	MH, HH
DIN EN ISO 898-2 2023-02	Fasteners – Mechanical properties of fasteners made of carbon steel and alloy steel – Part 2: Nuts with specified property classes	MH
DIN EN ISO 3506-1 2020-08	Fasteners – Mechanical properties of corrosion-resistant stainless steel fasteners – Part 1: Bolts, screws and studs with specified grades and property classes	MH
DIN EN ISO 3506-2 2020-08	Fasteners – Mechanical properties of corrosion-resistant stainless steel fasteners – Part 2: Nuts with specified grades and property classes	MH

1.7 Tests on Cast Iron

DIN EN 1561 2024-03	Founding – Grey cast irons	MH, H
DIN EN 1562 2019-06	Founding – Malleable cast irons	MH, HH

1.8 Miscellaneous Tests

ASTM A370-22 2022	Standard Test Methods and Definitions for Mechanical Testing of Steel Products	MH, HH
ASTM E111-17 2017	Standard Test Method for Young's Modulus, Tangent Modulus, and Chord Modulus	MH
DIN EN ISO 17660-1 2006-12 + Correction 1:2007-08	Welding – Welding of reinforcing steel – Part 1: Load-bearing welded joints	MH, HH
DIN EN ISO 17660-2 2006-12 + Correction 1:2007-08	Welding – Welding of reinforcing steel – Part 2: Non load-bearing welded joints	MH, HH

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2 Metallographic Examinations [Flex A]

ASTM A923-22 2022	Standard Test Methods for Detecting Detrimental Intermetallic Phase in Duplex Austenitic/Ferritic Stainless Steels	MH, HH
ASTM E45-18a(2023) 2018	Standard Test Methods for Determining the Inclusion Content of Steel	MH, HH
ASTM E112-24 2024	Standard Test Methods for Determining Average Grain Size	MH, HH
ASTM E340-15 2015	Standard Practice for Macroetching Metals and Alloys	MH, HH
ASTM E381-22 2022	Standard Method of Macroetch Testing Steel Bars, Billets, Blooms, and Forgings	MH, HH
ASTM E407-07(2015) 2007	Standard Practice for Microetching Metals and Alloys	MH, HH
ASTM E562-19 2019	Standard Test Method for Determining Volume Fraction by Systematic Manual Point Count	MH, HH
ASTM E930-18 2018	Standard Test Methods for Estimating the Largest Grain Observed in a Metallographic Section (ALA Grain Size)	MH
ASTM E1181-02(2015) 2002	Standard Test Methods for Characterizing Duplex Grain Sizes	MH
ASTM E1351-01(2012) 2001	Standard Practice for Production and Evaluation of Field Metallographic Replicas	HH
DIN EN ISO 643 2020-06	Steels – Micrographic determination of the apparent grain size	MH, HH
DIN EN ISO 945-1 2019-10	Microstructure of cast irons – Part 1: Graphite classification by visual analysis	MH, HH
DIN EN ISO 1463 2021-08	Metallic and oxide coatings – Measurement of coating thickness - Microscopical method	MH, HH
DIN EN ISO 3887 2018-05	Steels – Determination of the depth of decarburization	MH, HH
DIN EN ISO 17639 2022-05	Destructive tests on welds in metallic materials – Macroscopic and microscopic examination of welds	MH, HH

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DIN EN 2003-009 2007-07	Aerospace series – Test methods – Titanium and titanium alloys – Part 009: Determination of surface contamination	MH, HH
DIN EN 10247 2017-09	Micrographic examination of the non-metallic inclusion content of steels using standard pictures	MH, HH
DIN 30901 2016-12	Heat treatment of ferrous materials – Determination of the depth and form of appearance of the internal oxidation	MH
DIN 50602 1985-09	Metallographic examination; microscopic examination of special steels using standard diagrams to assess the content of non-metallic inclusions	MH, HH
ISO 4967 2013-07	Steel – Determination of content of non-metallic inclusions – Micrographic method using standard diagrams	MH
ISO 4968 2022-03	Steel – Macrographic examination by sulfur print (Baumann method)	MH, HH
SEP 1571-1 2017-08	Evaluation of inclusions in special steels based on their surface areas – Part 1: Basics	MH

3 Analysis of Chemical Composition of Metals such as Steel and Alloys Using Stationary and Transportable Vacuum Emission Spectrometers

EHH-3-002D 2024-03	Determination of C, Si, Mn, P, S, Ni, Cr, Mo, V, Al, Cu, W, Co, Nb, Ti, B, As, Zr, Ca, Pb, Te, Sb, Fe, Zn, Mg, Sn, N in Ni-, Al-, Cu-alloys, in low and high alloyed steels as well as in Ti-alloys (only HH), and Mg-alloys (only HH) using vacuum emission spectrometer	MH, HH
EHH-3-004D 2024-03	Determination of C, Si, Mn, P, S, Ni, Cr, Mo, V, Al, Cu, W, Co, Nb, Ti, B, As, Zr, Ca, Pb, Te, Sb, Fe, Zn, Mg, Sn in Ni-, Al-, Cu-alloys, in low and high alloyed steels using emission spectrometer – by testing mixed up components and examining the chemical properties of iron and non-ferrous metals with mobile spectral analysis instrument "WAS PMI-MASTER PLUS"	HH
EHH-3-005DE 2024-01	Work instruction positive material identification (PMI) positive alloys materials identification (PAMI)	MH, HH

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4 Corrosion Tests [Flex A]

ASTM A262-15(2021) 2015	Standard Practices for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels	MH, HH
ASTM G28-24 2024	Standard Test Methods for Detecting Susceptibility to Intergranular Corrosion in Wrought, Nickel-Rich, Chromium-Bearing Alloys	MH, HH
ASTM G48-11(2015) 2011	Standard Test Methods for Pitting and Crevice Corrosion Resistance of Stainless Steels and Related Alloys by Use of Ferric Chloride Solution	MH, HH
DIN EN ISO 3651-1 1998-08	Determination of resistance to intergranular corrosion of stainless steels – Part 1: Austenitic and ferritic-austenitic (duplex) stainless steels – Corrosion test in nitric acid medium by measurement of loss in mass (Huey test)	MH, HH
DIN EN ISO 3651-2 1998-08	Determination of resistance to intergranular corrosion of stainless steels – Part 2: Ferritic, austenitic and ferritic-austenitic (duplex) stainless steels - Corrosion test in media containing sulfuric acid	MH, HH
SEP 1877 1994-07	Test of the resistance of high-alloy, corrosion-proof materials against intercrystalline corrosion	MH

5 Determination of Electrical Conductivity of Alloys by Eddy Current Method [Flex A]

ASTM E1004-23 2023	Standard Test Method for Determining Electrical Conductivity Using the Electromagnetic (Eddy Current) Method	MH
DIN EN 2004-1 1993-09	Aerospace series; test methods for aluminium and aluminium alloy products; part 1: determination of electrical conductivity of wrought aluminium alloys	MH

6 Determination of Density of Metals [Flex A]

ASTM B311-22 2022	Standard Test Method For Density Of Powder Metallurgy (PM) Materials Containing Less Than Two Percent Porosity	MH, HH
ASTM B962-23 2023	Standard Test Methods For Density Of Compacted Or Sintered Powder Metallurgy (PM) Products Using Archimedes' Principle	MH, HH

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DIN EN ISO 3369 2010-08	Impermeable sintered metal materials and hardmetals – Determination of density	MH, HH

Abbreviations used:

ASTM	American Society of Testing and Materials
DIN	German Institute for Standardization
EN	European Standard
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
SEP	Steel-Iron Test Methods - publication from German Steel Institute of the Association of German Iron Works (VDEh)
EHH	In house method of the Element Materials Technology Hamburg GmbH

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Annex to the Accreditation Certificate D-PL-11166-01-02 according to DIN EN ISO/IEC 17025:2018

Valid from: **22.06.2026**

Date of issue: 22.06.2026

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The testing laboratory meets the requirements of DIN EN ISO/IEC 17025:2018 to carry out the conformity assessment activities listed in this annex. The testing 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 testing laboratories and they conform to the principles of DIN EN ISO 9001.

manual non-destructive testing (ultrasonic, magnetic particle, penetrant, visual and digital radiographic test) on metallic materials

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

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Flexible Scope of Accreditation:

The testing laboratory is permitted without being required to prior inform and obtain approval from DAkkS to use standardised or equivalent test methods listed here with different issue dates (Flexibility category A - [Flex A]).

The testing laboratory has an updated list of all test methods within the flexible scope of accreditation. The list is publicly available on the website of the testing laboratory.

The testing methods are marked with the following symbols for the sites at which they are performed:

MH = Mülheim, HH = Hamburg

1 Ultrasonic testing

DIN EN ISO 17640 2019-02	Non-destructive testing of welds - Ultrasonic testing - Techniques, testing levels, and assessment	MH, HH
DIN EN 10160 1999-09	Ultrasonic testing of steel flat product of thickness equal to or greater than 6 mm (reflection method)	MH, HH
DIN EN 10228-3 2016-10	Non-destructive testing of steel forgings - Part 3: Ultrasonic testing of ferritic or martensitic steel forgings	MH, HH
DIN EN 10228-4 2016-10	Non-destructive testing of steel forgings - Part 3: Ultrasonic testing of ferritic or martensitic steel forgings	MH, HH
DIN EN 10307 2002-03	Non-destructive testing of steel forgings - Part 3: Ultrasonic testing of ferritic or martensitic steel forgings	MH, HH
DIN EN 10308 2002-03	Non-destructive testing of steel forgings - Part 3: Ultrasonic testing of ferritic or martensitic steel forgings	MH, HH
DIN EN ISO 10893-8 2020-10	Non-destructive testing of steel forgings - Part 3: Ultrasonic testing of ferritic or martensitic steel forgings	MH

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DIN EN ISO 10893-10 2020-10	Non-destructive testing of steel tubes - Part 10: Automated full peripheral ultrasonic testing of seamless and welded (except submerged arc-welded) steel tubes for the detection of longitudinal and/or transverse imperfections	MH
DIN EN 12680-1 2003-06	Founding - Ultrasonic examination - Part 1: Steel castings for general purposes	HH
DIN EN 12680-2 2003-06	Founding - Ultrasonic examination - Part 1: Steel castings for general purposes	HH
DIN EN 12680-3 2012-02	Founding - Ultrasonic examination - Part 1: Steel castings for general purposes	HH
DIN EN 10306 2002-04	Iron and steel - Ultrasonic testing of H beams with parallel flanges and IPE beams	MH, HH
SEP 1921 1984-12	Ultrasonic testing of forgings and forged bar steel from ~100 mm diameter or edge to edge length	MH, HH
AD 2000-Merkblatt HP 5/3 2020-12	Manufacture and testing of joints - Non-destructive testing of welded joints	MH, HH

2 Magnetic particle testing

DIN EN ISO 9934-1 2017-03	Non-destructive testing - Magnetic particle testing - Part 1: General principles	MH, HH
DIN EN ISO 17638 2017-03	Non-destructive testing of welds - Magnetic particle testing	MH, HH
DIN EN 1369 2013-01	Founding - Magnetic particle testing	MH, HH
DIN EN 10228-1 2016-10	Non-destructive testing of steel forgings - Part 1: Magnetic particle inspection	MH, HH

3 Penetrant testing

DIN EN ISO 3452-1 2022-02	Non-destructive testing - Penetrant testing - Part 1: General principles	MH, HH

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DIN EN ISO 3452-6 2009-04	Non-destructive testing of steel forgings - Part 2: Penetrant testing	MH, HH
DIN EN 10228-2 2016-10	Non-destructive testing of steel forgings - Part 2: Penetrant testing	MH, HH
DIN EN 1371-1 2012-02	Founding - Liquid penetrant testing - Part 1: Sand, gravity die and low pressure die castings	MH, HH
DIN EN 1371-2 2015-04	Founding - Liquid penetrant testing - Part 2: Investment castings	MH, HH

4 Visual testing

DIN EN ISO 17637 2017-04	Non-destructive testing of welds - Visual testing of fusion-welded joints	MH, HH
DIN EN 13018 2016-06	Non-destructive testing - Visual testing - General principles	MH, HH
DIN EN 1370 2012-03	Founding - Examination of surface condition	MH, HH

5 Digitale Radiography

DIN EN ISO 17636-2 2023-05	Non-destructive testing of welds - Radiographic testing – Part 2: X- and gamma-ray techniques with digital detectors	HH

Abbreviations used:

AD HP	Arbeitsgemeinschaft Druckbehälter; Herstellung und Prüfung
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
SEP	Stahl-Eisen-Prüfblatt vom Verein Deutscher Eisenhüttenleute

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