

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 testing laboratory

Element Materials Technology Hamburg GmbH
Tempowerkring 11, 21079 Hamburg

at the locations

Tempowerkring 11, 21079 Hamburg
Lahnstraße 26, 45478 Mülheim/Ruhr
Siemensstraße 17, 73733 Esslingen
Südstraße 59, 44625 Herne

is competent under the terms of DIN EN ISO/IEC 17025:2005 to carry out tests in the following fields:

structural mechanical and metallographic testing;
selected corrosion tests and chemical tests using stationary and mobile vacuum emission spectrometer as well as manual non-destructive tests (ultrasonic test, magnetic particle test, penetrant test, visual test and digital radiographic) on metallic materials

The accreditation certificate shall only apply in connection with the notice of accreditation of 24.05.2017 with the accreditation number D-PL-11166-01 and is valid until 19.06.2021. It comprises the cover sheet, the reverse side of the cover sheet and the following annex with a total of 12 pages.

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

Berlin,
24.05.2017

Dipl.-Ing. (FH) Ralf Egner
Head of Division

Translation issued:
20.03.2018


Head of Division

Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-PL-11166-01-00 according to DIN EN ISO/IEC 17025:2005

Period of validity: 24.05.2017 to 19.06.2021

Date of issue: 20.03.2018

Holder of certificate:

Element Materials Technology Hamburg GmbH
Tempowerkring 11, 21079 Hamburg

at the locations

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Abbreviations used: see last page

The testing laboratory is permitted, without being required to inform and obtain prior approval from DAkkS, to use standard testing methods listed here with different issue dates.

The test methods are indicated with the symbols of locations in which they are carried out as follows:

HER = Herne, MH = Mülheim, ES = Esslingen, HH = Hamburg

1 Structural mechanical tests

DIN EN ISO 642 2000-01	Steel - Hardenability test by end quenching (Jominy test)	HER, MH
DIN EN ISO 9016 2013-02	Destructive tests on welds in metallic materials - Impact tests - Test specimen location, notch orientation and examination	HER, MH, ES, HH
DIN EN ISO 4136 2013-02	Destructive tests on welds in metallic materials - Transverse tensile test	HER, MH, ES, HH
DIN EN ISO 5173 2012-02	Destructive tests on welds in metallic materials - Bend tests	HER, MH, ES, 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	HER, MH, ES, HH
DIN EN ISO 9015-2 2011-05	Destructive tests on welds in metallic materials - Hardness testing - Part 2: Microhardness testing of welded joints	HER, MH, ES, HH
DIN EN ISO 9017 2013-12	Destructive tests on welds in metallic materials - Fracture test	HER, MH, ES, HH
DIN EN 1561 2012-01	Founding - Grey cast iron	HER, MH, ES, HH
DIN EN 1562 2012-05	Founding - Malleable cast iron	HER, MH, ES, HH
DIN EN ISO 6506-1 2006-03	Metallic materials - Brinell hardness test - Part 1: Test method	HER, MH, ES, HH
DIN EN ISO 6507-1 2006-03	Metallic materials - Vickers hardness test - Part 1: Test method	HER, MH, ES, HH
DIN EN ISO 6508-1 2015-06	Metallic materials - Rockwell hardness test - Part 1: Test method (scales A, B, C, D, E, F, G, H, K, N, T) (here: <i>scales A, B, C, D, F and G</i>)	HER, MH, ES, HH
DIN EN ISO 7438 2016-01	Metallic materials - Bend test	HER, MH, ES, HH

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DIN EN ISO 6892-1 2014-06	Metallic materials - Tensile testing - Part 1: Method of testing at ambient temperature (here: <i>Method B</i>)	HER, MH, ES, HH
DIN EN ISO 6892-2 2011-05	Metallic materials - Tensile testing - Part 2: Method of test at elevated temperature (here: <i>Method B</i>)	HER, MH, HH
DIN EN ISO 148-1 2011-01	Metallic materials - Charpy pendulum impact test - Part 1: Test method	HER, MH, ES, HH
DIN EN 10164 2005-03	Steel products with improved deformation properties perpendicular to the surface of the product - Technical delivery conditions	HER, MH, ES, HH
DIN EN ISO 8492 2014-03	Metallic materials - Tube - Flattening test	HER, MH, ES, HH
DIN EN ISO 8493 2004-10	Metallic materials - Tube - Drift-expanding test	HER, MH, ES, HH
DIN EN ISO 8495 2014-03	Metallic materials - Tube - Ring-expanding test	HER, ES
DIN EN ISO 8496 2014-03	Metallic materials - Tube - Ring tensile test	HER, MH, ES, HH
DIN EN ISO 2639 2003-04	Steels - Determination and verification of the depth of carburized and hardened cases	HER, MH, ES, HH
DIN EN 10328 2005-04	Iron and steel - Determination of the conventional depth of hardening after surface heating	HER, MH, ES, HH
DIN 50190-3 1979-03	Hardness depth of heat-treated parts - Determination of the effective depth of hardening after nitriding	HER, MH, ES, HH
SEP 1390 1996-07	Beadbend test	HER, MH, ES, HH
ASTM E 10 2015	Standard Test Method for Brinell Hardness of Metallic Materials	HER, MH, ES, HH
ASTM E 18 2015	Standard Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials	HER, MH, ES, HH

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ASTM E 8/E 8M 2015	Standard Test Methods for Tension Testing of Metallic Materials	HER, MH, ES, HH
ASTM E 21 2009	Standard Test Methods for Elevated Temperature Tension Tests of Metallic Materials	HER, MH, ES, HH
ASTM A 770/ A 770M 2012	Standard Specification for Through-Thickness Tension Testing of Steel Plates for Special Applications	HER, MH, ES, HH
ASTM E 384 2011	Standard Test Method for Knoop and Vickers Hardness of Metallic Materials	HER, ES
ASTM E 23c 2012	Standard Test Methods for Notched Bar Impact Testing of Metallic Materials (Restriction: <i>Performance according to Charpy</i>)	HER, HH
DIN EN ISO 17660-1 2006-12 + Amendment 1 2007-08	Welding - Welding of reinforcing steel - Part 1: Load-bearing welded joints Para. 14: Examination and testing of samples Para. 14.2: Tensile test Para. 14.3: Shear test Para. 14.3: Bend test	HER, MH, HH
DIN EN ISO 17660-2 2006-12 + Amendment 1 2007-08	Welding - Welding of reinforcing steel - Part 2: Non load-bearing welded joints Para. 14: Examination and testing of samples - Tensile test	HER, MH,
DIN EN 15048-2 2014-11	Non-preloaded structural bolting assemblies - Part 2: Suitability test	HER, MH, ES, HH
DIN EN ISO 5178 2011-05	Destructive tests on welds in metallic materials - Longitudinal tensile test on weld metal in fusion welded joints	HER, MH, ES, HH
ASTM E 436 2003 (reapproval 2014)	Standard Test Method for Drop-Weight Tear Tests of Ferritic Steels	HER

2 Metallographic Examinations

DIN EN ISO 1463 2004-08	Metallic and oxide coatings - Measurement of coating thickness - Microscopical method	HER, MH, ES, HH
DIN EN ISO 17639 2013-12	Destructive test on welds in metallic materials – Macroscopic and microscopic examination of welds	HER, MH, ES, HH
ISO 4968 1979-11	Steel - Macrographic examination by sulphur print (Baumann method)	HER, MH, ES, HH
DIN EN ISO 3887 2003-10	Determination of depth of decarburization	HER, MH, ES, HH
DIN EN ISO 643 2015-06	Steel - Microphotographic determination of average Grain Size	HER, MH, ES, HH
DIN 54150 1977-08	Non-destructive testing - Impression methods for surface examination (Replica-technique) <i>(withdrawn standard)</i>	HER, HH
ISO 3057 1998-03	Non-destructive testing - Metallographic replica techniques of surface examination	HER, MH, ES, HH
ASTM E 1351 2012	Standard Practice for Production and Evaluation of Field Metallographic Replicas	HER, HH
DIN EN 10247 2007-07	Micrographic examination of the non-metallic inclusion content of steels using standard pictures	HER, MH, ES, HH
ISO 4967 2013-07	Steel - Determination of content of nonmetallic inclusions - Micrographic method using standard diagrams	HER, MH
SEP 1520 1998-09	Microscopic examination of carbide formation with image series	HER, MH, ES, HH
ASTM E 112 2012	Standard Test Methods for Determining Average Grain Size	HER, MH, ES, HH
ASTM E 340 2015	Standard Test Method for Macroetching Metals and Alloys	HER, MH, ES, HH
ASTM E 407 2015	Standard Practice for Microetching Metals and Alloys	HER, MH, ES, HH

ASTM E 45a 2011	Standard Test Methods for Determining the Inclusion Content of Steel	HER, MH, ES, HH
ASTM E 381 2012	Standard Method of Macroetch Testing Steel Bars, Billets, Blooms, and Forgings	HER, MH, ES, HH
DIN EN ISO 2624 1995-08	Copper and copper alloys - Estimation of average grain size	HER, MH, ES, HH
ASTM E 562 2011	Standard Test Method for Determining Volume Fraction by Systematic Manual Point Count	HER, MH, ES, HH
ASTM A 923 2014	Standard Test Methods for Detecting Detrimental Intermetallic Phase in Duplex Austenitic/Ferritic Stainless Steels	HER, MH, ES, HH

3 Chemical Examinations

MFA-3-2D 2015-11	Determination by the vacuum emission spectrometer 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-alloy steels as well as in chilled cast iron (only ES) and in Co alloys (only ES)), Ti- and Mg-alloys (only HH, without gas)	HER, MH, ES, HH
MFA-3-3D 2015-11	Determination by the vacuum emission spectrometer 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-alloy steels; performance of spectroscopic analyses by means of the portable Belec- Compactport A device	ES
MFA-3-4D 2015-11	Determination by the emission spectrometer 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-alloy steels; Implementation of positive material identification and the determination of the chemical composition of iron and non-ferrous metals with the portable spectrum analyzer "WAS PMI-MASTER PLUS"	HER, HH

MFA-3-5D 2015-11	Work Instruction Positive Material Identification (PMI) Positive Alloy Material Identification (PAMI)	HER, MH, ES, HH
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4 Corrosion Tests

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 by measuring the mass loss (Huey test)	HER, ES, HH
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DIN EN ISO 3651-2 1998-08	Determination of resistance to intergranular corrosion of stainless steels - Part 2: Austenitic and ferritic-austenitic (duplex) stainless steels - Corrosion test in media containing sulphuric acid	HER, ES, HH
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DIN 50915 1993-09	Testing the resistance of unalloyed and low alloy steels to intergranular stress corrosion cracking by attack of nitrate medium - Welded and unwelded materials	HER, ES
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SEP 1877 1994-07	Testing of the resistance of high-alloy, corrosion-proof materials against intercrystalline corrosion	HER, ES, HH
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DIN EN 10229 1998-11	Evaluation of resistance of steel products to hydrogen induced cracking (HIC)	ES
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ASTM A 262 2010	Standard Practices for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels (Prac. A, B, C + E)	HER, ES, HH
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ASTM G 28 2015	Standard Test Methods of Detecting Susceptibility to Intergranular Corrosion in Wrought, Nickel-Rich, Chromium-Bearing Alloys	HER, ES, HH
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ASTM G 48 2015	Standard Test Methods for Pitting and Crevice Corrosion Resistance of stainless Steels and Related Alloys by Use of Ferric Chloride Solution	HER, ES, HH
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Resolution MSC. 215(82) 2006-12	Performance Standard for Protective Coatings for Dedicated Seawater Ballast Tanks in all Types of Ships and Double-Side Spaces of Bulk Carriers	HH
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DIN EN ISO 9400 1995-12	Nickel-based alloys - Determination of resistance to intergranular corrosion	HER, MH, ES, HH
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5 Ultrasonic Examinations

DIN EN ISO 16826 2014-06	Non-destructive testing - Ultrasonic testing - Examination for discontinuities perpendicular to the surface	HER, MH, ES, HH
DIN EN ISO 17640 2011-04	Non-destructive testing of welds - Ultrasonic testing - Techniques, testing levels, and assessment	HER, MH, ES, HH
DIN EN ISO 22825 2012-08	Non-destructive testing of welds - Ultrasonic testing - Testing of welds in austenitic steels and nickel-based alloys	HER, MH, ES, HH
DIN EN 10160 1999-09	Ultrasonic testing of steel flat products of thickness equal or greater than 6 mm (reflection method)	HER, MH, ES, HH
DIN EN 10228-3 2012-12	Non-destructive testing of steel forgings - Part 3: Ultrasonic testing of ferritic or martensitic steel forgings	HER, MH, ES, HH
DIN EN 10228-4 2012-12	Non-destructive testing of steel forgings - Part 4: Ultrasonic testing of austenitic and austenitic-ferritic stainless steel forgings	HER, MH, ES, HH
DIN EN 10307 2002-03	Non-destructive testing - Ultrasonic testing of flat products of austenitic and austenitic-ferritic stainless steel greater than 6 mm (reflection method)	HER, MH, ES, HH
DIN EN 10308 2002-03	Non-destructive testing - Ultrasonic testing of steel bars	HER, MH, ES, HH
DIN EN ISO 10893-8 2011-07	Non-destructive testing of steel tubes - Part 8: Automated ultrasonic testing of seamless and welded steel tubes for the detection of laminar imperfections	HER, MH, ES, HH

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DIN EN ISO 10893-9 2011-07	Non-destructive testing of steel tubes - Part 9: Automated ultrasonic testing for the detection of laminar imperfections in strip/plate used for the manufacture of welded steel tubes	HER, MH, ES, HH
DIN EN ISO 10893-10 2011-07	Non-destructive testing of steel tubes - Part 10: Automated full peripheral ultrasonic testing of seam- less and welded (except submerged arc-welded) steel tubes for the detection of longitudinal and/or transverse imperfections	HER, MH, ES, HH
DIN EN ISO 10893-11 2011-07	Non-destructive testing of steel tubes - Part 11: Automated ultrasonic testing of the weld seam of welded steel tubes for the detection of longitudinal and/or transverse imperfections	HER, MH, ES, HH
DIN EN ISO 10893-12 2011-07	Non-destructive testing of steel tubes - Part 12: Automated full peripheral ultrasonic thickness testing of seamless and welded (except submerged arc-welded) steel tubes	HER, MH, ES, HH
SEP 1916 1989-12	Non-destructive examination of fusion-welded ferritic steel tubes	HER, MH, ES, HH
SEP 1917 1994-09	Non-destructive examination of electrically pressure welded ferritic steel tubes	HER, MH, ES, HH
DIN EN 12680-1 2003-06	Founding - Ultrasonic examination - Part 1: Steel castings for general purposes	HER, MH, ES, HH
DIN EN 12680-2 2003-06	Founding - Ultrasonic examination - Part 2: Steel castings for highly stressed components	HER, MH, ES, HH
DIN EN 12680-3 2012-02	Founding - Ultrasonic testing - Part 3: Spheroidal graphite cast iron castings	HER, MH, ES, HH
SEP 1923 2009-02	Ultrasonic testing of steel forgings to stringent standards, in particular for components in turbine and generator systems	HER, MH, ES, HH
DIN EN 10306 2002-04	Iron and steel - Ultrasonic testing of H beams with parallel flanges and IPE beams	HER, MH, ES, HH

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AD 2000-Merkblatt HP 5/3 2015-04	Manufacture and testing of joints - Non-destructive testing of the welds	HER, MH, ES, HH
DIN ISO 4386-1 2015-12	Plain bearings - Metallic multilayer plain bearings - Non-destructive ultrasonic testing of bond	HER, MH, ES, HH
DIN EN 14127 2011-04	Non-destructive testing - Ultrasonic thickness measurement	HER, MH, ES, HH
ASME Section V, Article 4 & 5	Ultrasonic Examination	HER, MH, ES, HH
ASME Section V, Article 4 & 5 & 23	Straight-Beam Ultrasonic Examination of Steel Plates (UT)	HER, MH, ES, HH
ASME Section VIII	Ultrasonic Examination of Welds	HER, MH, ES, HH
SEP 1921 1984-12	Ultrasonic testing of forgings and forged steel bars with diameters or edge lengths of ~ 100 mm and above	HER, MH, ES, HH

6 Magnetic Particle Examinations

DIN EN ISO 9934-1 2015-12	Non-destructive testing - Magnetic particle testing - Part 1: General rules	HER, MH, ES, HH
DIN EN ISO 17638 2010-03	Non-destructive Testing of welded joints - Magnetic particle testing of welded joints	HER, MH, ES, HH
DIN EN 1369 2013-01	Founding - Magnetic particle testing	HER, MH, ES, HH
DIN EN 10228-1 1999-07	Non-destructive testing of steel forgings - Part 1: Magnetic particle testing	HER, MH, ES, HH
DIN EN ISO 10893-5 2011-07	Non-destructive testing of steel tubes - Part 5: Magnetic particle inspection of seamless and welded ferromagnetic steel tubes for the detection of surface imperfections	HER, MH, ES, HH
ASME Section V Article 7 & 25 2010	Magnetic particle testing	HER, MH, ES, HH

7 Penetrant Examination

DIN EN ISO 3452-1 2014-09	Non-destructive testing - Penetrant testing - Part 1: General principles	HER, MH, ES, HH
DIN EN ISO 3452-5 2009-04	Non-destructive testing - Penetrant testing - Part 5: Penetrant testing at temperatures more than 50 °C	HER, MH, ES, HH
DIN EN ISO 3452-6 2009-04	Non-destructive testing - Penetrant testing - Part 6: Penetrant testing at temperatures less than 10 °C	HER, MH, ES, HH
DIN EN 10228-2 1998-06	Non-destructive testing of steel forgings - Part 2: Pene- trant testing	HER, MH, ES, HH
DIN EN 1371-1 2012-02	Founding - Liquid penetrant testing - Part 1: Sand, gravity die and low pressure die castings	HER, MH, ES, HH
DIN EN 1371-2 2015-04	Founding - Liquid penetrant inspection - Part 2: Invest- ment castings	HER, MH, ES, HH
ASME Section V Article 6 & 24 (2010) ASME Section VIII	Liquid Penetrant Examination	HER, MH, ES, HH

8 Visual Testing

DIN EN ISO 17637 2011-05	Non-destructive testing of welds - Visual testing of fusion-welded joints	HER, MH, ES, HH
DIN EN 13018 2001-07	Non-destructive testing - Visual testing - General principles	HER, MH, ES, HH
DIN EN 1370 2012-03	Founding - Examination of surface condition	HER, MH, ES, HH
DIN EN 10163-1 Amendment 2007-05	Delivery requirements for surface condition of hot- rolled steel plates, wide flats and sections - Part 1: General requirements	HER, MH, ES, HH
DIN EN 10163-2 2005-03	Delivery requirements for surface conditions of hot- rolled steel plates, wide flats and sections - Part 2: Plate and wide flats	HER, MH, ES, HH

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DIN EN 10163-3 2005-03	Delivery requirements for surface condition of hot-rolled steel plates, wide flats and sections - Part 3: Sections	HER, MH, ES, HH
DIN EN ISO 8501-1 2007-12	Preparation of steel substrates before application of paints and related products - Visual assessment of surface cleanliness - Part 1: Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings	HER, MH, ES, HH
DIN EN ISO 8501-2 2002-03	Preparation of steel substrates before application of paints and related products - Visual assessment of surface cleanliness - Part 2: Preparation grades of previously coated steel substrates after localized removal of previous coatings	HER, MH, ES, HH
DIN EN ISO 8501-3 2007-10	Preparation of steel substrates before application of paints and related products - Visual assessment of surface cleanliness - Part 3: Preparation grades of welds, edges and other areas with surface imperfections	HER, MH, ES, HH

9 Digital Radiography

DIN EN ISO 17636-2 2013-05	Non-destructive testing of welds - Radiographic testing Part 2: X- and gamma-ray techniques with digital detectors	HH
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abbreviation used:

ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
GLP	Examination procedures belong to Germanischer Lloyd Prüflabor GmbH
SEP	Steel-Iron-test sheets from the German Iron and Steel Institute