

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

mit ihren Standorten

Tempowerkring 11, 21079 Hamburg
Lahnstraße 26, 45478 Mülheim a. d. Ruhr
Siemensstraße 17, 73733 Esslingen

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

Mechanical and metallographic testing; selected corrosion tests and chemical testing using stationary and mobile vacuum-emissions spectrometers as well as manual non-destructive tests (ultrasonic testing, magnet particle testing, penetrant testing, visual testing and digital radiography) on metallic materials


The accreditation certificate shall only apply in connection with the notice of accreditation of 14.07.2020 with the accreditation number D-PL-11166-01. It comprises the cover sheet, the reverse side of the cover sheet and the following annex with a total of 13 pages.

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

Frankfurt am Main,
14.07.2020

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

Translation issued:
14.07.2020



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>

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 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-PL-11166-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: 14.07.2020

Date of issue: 29.09.2021

Holder of certificate:

**Element Materials Technology Hamburg GmbH
Tempowerkring 11, 21079 Hamburg**

at the locations

**Tempowerkring 11, 21079 Hamburg
Lahnstraße 26, 45478 Mülheim a. d. Ruhr
Siemensstraße 17, 73733 Esslingen**

Tests in the fields:

mechanical and metallographic testing; selected corrosion tests and chemical testing using stationary and mobile vacuum-emissions spectrometers as well as manual non-destructive tests (ultrasonic testing, magnet particle testing, penetrant testing, visual testing and digital radiography) on metallic materials

Within the scope of accreditation marked with *, the testing laboratory is permitted, without being required to inform and obtain prior approval from DAkkS, to use test standards or equivalent normative test procedures listed here with different issue dates.

The calibration laboratory maintains a current list of all test standards / equivalent normative test procedures within the flexible scope of accreditation.

The test methods are indicated with the following symbols for the locations in which they are conducted:

MH = Mülheim, ES = Esslingen-Mettingen, HH = Hamburg

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

Abbreviations used: see last page

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

Annex to the accreditation certificate D-PL-11166-01-00

1 Mechanical testing *

DIN EN ISO 642 2000-01	Steel - Hardenability test by end quenching (Jominy test)	MH
DIN EN ISO 9016 2013-02	Destructive tests on welds in metallic materials - Impact tests - Test specimen location, notch orientation and examination	MH, ES, HH
DIN EN ISO 4136 2013-02	Destructive tests on welds in metallic materials - Transverse tensile test	MH, ES, HH
DIN EN ISO 5173 2012-02	Destructive tests on welds in metallic materials - Bend tests	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	MH, ES, HH
DIN EN ISO 9015-2 2016-10	Destructive tests on welds in metallic materials - Hardness testing - Part 2: Microhardness testing of welded joints	MH, ES, HH
DIN EN ISO 9017 2018-04	Destructive tests on welds in metallic materials - Fracture test	MH, ES, HH
DIN EN 1561 2012-01	Founding - Grey cast irons	MH, ES, HH
DIN EN 1562 2012-05	Founding - Malleable cast irons	MH, ES, HH
DIN EN ISO 6506-1 2015-02	Metallic materials - Brinell hardness test - Part 1: Test method	MH, ES, HH
DIN EN ISO 6507-1 2018-07	Metallic materials - Vickers hardness test - Part 1: Test method	MH, ES, HH
DIN EN ISO 6508-1 2016-12	Metallic materials - Rockwell hardness test - Part 1: Test method (here: <i>Scale A, B, C, D, F and G</i>)	MH, ES, HH
DIN EN ISO 7438 2016-01	Metallic materials - Bend test	MH, ES, HH

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DIN EN ISO 6892-1 2014-06	Metallic materials - Tensile testing - Part 1: Method of test at room temperature <i>(Method B in MH, ES, HH)</i> <i>(Method A nur in MH)</i> <i>(withdrawn standard)</i>	
DIN EN ISO 6892-2 2018-09	Metallic materials - Tensile testing - Part 2: Method of test at elevated temperature <i>(Method B in MH, ES, HH)</i> <i>(Method A nur in MH)</i>	MH, ES, HH
DIN EN ISO 148-1 2017-05	Metallic materials - Charpy pendulum impact test - Part 1: Test method	MH, ES, HH
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 <i>(here: Section 9 except 9.13)</i>	
DIN EN 10164 2018-12	Steel products with improved deformation properties perpendicular to the surface of the product - Technical delivery conditions	MH, ES, HH
DIN EN ISO 8492 2014-03	Metallic materials - Tube - Flattening test	MH, ES, HH
DIN EN ISO 8493 2004-10	Metallic materials - Tube - Drift-expanding test	MH, ES, HH
DIN EN ISO 8495 2014-03	Metallic materials - Tube - Ring-expanding test	MH, ES
DIN EN ISO 8496 2014-03	Metallic materials - Tube - Ring tensile test	MH, ES, HH
DIN EN ISO 2639 2003-04	Steels - Determination and verification of the depth of carburized and hardened cases	MH, ES, HH
DIN EN 10328 2005-04	Iron and steel - Determination of the conventional depth of hardening after surface heating	MH, ES, HH
DIN 50190-3 1979-03	Hardness depth of heat-treated parts; determination of the effective depth of hardening after nitriding	MH, ES, HH
SEP 1390 1996-07	Weld bead bend test	MH, ES, HH

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ASTM E 10 2015	Standard Test Method for Brinell Hardness of Metallic Materials	MH, ES, HH
ASTM E 18 2019	Standard Test Methods for Rockwell Hardness of Metallic Materials	MH, ES, HH
ASTM E 8/ E 8Ma 2016	Standard Test Methods for Tension Testing of Metallic Materials	MH, ES, HH
ASTM E 21 2017	Standard Test Methods for Elevated Temperature Tension Tests of Metallic Materials	MH, ES, HH
ASTM A 370a 2019-01	Standard Test Methods and Definitions for Mechanical Testing of Steel Products <i>(here: Clauses 6 - 32)</i>	MH, ES, HH
ASTM A 770/ A 770M 2012	Standard Specification for Through-Thickness Tension Testing of Steel Plates for Special Applications	MH, ES, HH
ASTM E 384 2017	Standard Test Method for Microindentation Hardness of Materials	MH, ES
ASTM E 23c 2012	Test Methods for Notched Bar Impact Testing of Metallic Materials <i>(here: restricted to charpy testing only)</i> <i>(withdrawn standard)</i>	MH, HH
DIN EN ISO 17660-1 2006-12 + Correction 1 2007-08	Welding - Welding of reinforcing steel - Part 1: Load-bearing welded joints <i>(here:</i> <i>Cl. 14: examination and testing of samples</i> <i>Cl. 14.2: tensile testing</i> <i>Cl. 14.3: shear test</i> <i>Cl. 14.4: bend test)</i>	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
DIN EN 15048-2 2016-09	Non-preloaded structural bolting assemblies - Part 2: Fitness for purpose	MH, ES, 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, ES, HH

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ASTM E 111 2017	Standard Test Method for Young's Modulus, Tangent Modulus, and Chord Modulus	MH
ASTM B 557 2015	Standard Test Methods for Tension Testing Wrought and Cast Aluminum- and Magnesium-Alloy Products	MH
DIN EN 2002-001 2006-11	Aerospace series - Metallic materials - Test methods - Part 1: Tensile testing at ambient temperature	MH
ASTM E 92 2017	Standard Test Methods for Vickers Hardness and Knoop Hardness of Metallic Materials	MH
ASTM E 190 2014	Standard Test Method for Guided Bend Test for Ductility of Welds	MH
ASTM E 290 2014	Standard Test Methods for Bend Testing of Material for Ductility	MH
DIN EN ISO 9018 2016-02	Destructive tests on welds in metallic materials - Tensile test on cruciform and lapped joints	MH
2 Metallographic tests *		
DIN EN ISO 1463 2004-08	Metallic and oxide coatings - Measurement of coating thickness - Microscopical method	MH, ES, HH
DIN EN ISO 17639 2013-12	Destructive tests on welds in metallic materials - Macroscopic and microscopic examination of welds	MH, ES, HH
ISO 4968 1979-11	Steel; Macrographic examination by sulfur print (Baumann method)	MH, ES, HH
DIN EN ISO 3887 2018-05	Steels - Determination of the depth of decarburization	MH, ES, HH
DIN EN ISO 643 2013-05	Steels - Micrographic determination of the apparent grain size	MH, ES, HH
DIN 54150 1977-08	Non-destructive testing; impression methods for surface examination (Replica-technique) <i>(withdrawn standard)</i>	MH, HH
ISO 3057 1998-03	Non-destructive testing - Metallographic replica techniques of surface examination	MH, ES, HH

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ASTM E 1351 2012	Standard Practice for Production and Evaluation of Field Metallographic Replicas	MH, HH
DIN EN 10247 2017-09	Micrographic examination of the non-metallic inclusion content of steels using standard pictures	MH, ES, HH
ISO 4967 2013-07	Steel - Determination of content of non-metallic inclusions - Micrographic method using standard diagrams	MH
SEP 1520 1998-09	Microscopic examination of carbide structure in steels by means of diagram series	MH, ES, HH
ASTM E 112 2013	Standard Test Methods for Determining Average Grain Size	MH, ES, HH
ASTM E 340 2015	Standard Practice for Macroetching Metals and Alloys	MH, ES, HH
ASTM E 407 2015	Standard Practice for Microetching Metals and Alloys	MH, ES, HH
ASTM E 45a 2011	Standard Test Methods for Determining the Inclusion Content of Steel	MH, ES, HH
ASTM E 381 2017	Standard Method of Macroetch Testing Steel Bars, Billets, Blooms, and Forgings	MH, ES, HH
DIN EN ISO 2624 1995-08	Copper and copper alloys - Estimation of average grain size	MH, ES, HH
ASTM E 562 2011	Standard Test Method for Determining Volume Fraction by Systematic Manual Point Count	MH, ES, HH
ASTM A 923 2014	Standard Test Methods for Detecting Detrimental Intermetallic Phase in Duplex Austenitic/Ferritic Stainless Steels	MH, ES, HH
ASTM E 1181 2002	Standard Test Methods for Characterizing Duplex Grain Sizes	MH

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DIN 30901 2016-12	Heat treatment of ferrous materials - Determination of the depth and form of appearance of the internal oxidation	MH
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3 Chemical testing using stationary and mobile vacuum emissionspectrometers

EHH-3-002D 2019-06	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 cold rolled cast iron (only S) and in Co-alloys (only S), Ti- and Mg-alloys (only HH, without gases) using vacuum emission spectrometer	MH, ES, HH
EHH-3-003 2017-02	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- through means of spectral analyses with mobile Belec-Compactport A-instrument	ES
EHH-3-004D 2017-02	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"	MH, HH
EHH-3-005D 2017-01	Work instruction positive material identification (PMI) positive alloys materials identification (PAMI)	MH, ES, HH

4 Corrosion testing *

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, ES, 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, ES, HH
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	MH, ES
SEP 1877 1994-07	Test of the resistance of high-alloy, corrosion-proof materials against intercrystalline corrosion	MH, ES, HH

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DIN EN 10229 1998-11	Evaluation of resistance of steel products to hydrogen induced cracking (HIC)	ES
ASTM A 262 Prac. A, B, C + E 2015	Standard Practices for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels	MH, ES, HH
ASTM G 28 2015	Standard Test Methods for Detecting Susceptibility to Intergranular Corrosion in Wrought, Nickel-Rich, Chromium-Bearing Alloys	MH, ES, HH
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	MH, ES, HH
DIN EN ISO 9400 1995-12	Nickel-based alloys - Determination of resistance to intergranular corrosion	MH, ES, HH

5 Ultrasonic tests * MH, ES, HH

DIN EN ISO 16826 2014-06	Non-destructive testing - Ultrasonic testing - Examination for discontinuities perpendicular to the surface
DIN EN ISO 17640 2019-02	Non-destructive testing of welds - Ultrasonic testing - Techniques, testing levels, and assessment
DIN EN ISO 22825 2018-02	Non-destructive testing of welds - Ultrasonic testing - Testing of welds in austenitic steels and nickel-based alloys
DIN EN 10160 1999-09	Ultrasonic testing of steel flat product of thickness equal to or greater than 6 mm (reflection method)
DIN EN 10228-3 2016-10	Non-destructive testing of steel forgings - Part 3: Ultrasonic testing of ferritic or martensitic steel forgings
DIN EN 10228-4 2016-10	Non-destructive testing of steel forgings - Part 4: Ultrasonic testing of austenitic and austenitic-ferritic stainless steel forgings
DIN EN 10307 2002-03	Non-destructive testing - Ultrasonic testing of austenitic and austenitic-ferritic stainless steels flat products of thickness equal to or greater than 6 mm (reflection method)

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DIN EN 10308 2002-03	Non-destructive testing - Ultrasonic testing of steel bars
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 (here: <i>Annex A</i>)
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 (here: <i>Annex A</i>)
DIN EN ISO 10893-10 2011-07	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 (here: <i>Annex B</i>)
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 (here: <i>Annex A</i>)
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 (here: <i>Annex A</i>)
SEP 1916 1989-12	Non-destructive testing fusion welded ferritic steel pipes
SEP 1917 1994-09	Non-destructive testing of resistance welded pipes of ferritic steels
DIN EN 12680-1 2003-06	Founding - Ultrasonic examination - Part 1: Steel castings for general purposes
DIN EN 12680-2 2003-06	Founding - Ultrasonic examination - Part 2: Steel castings for highly stressed components
DIN EN 12680-3 2012-02	Founding - Ultrasonic testing - Part 3: Spheroidal graphite cast iron castings

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SEP 1923 2009-02	Ultrasonic testing of steel forgings to stringent standards, in particular for components in turbine and generator systems
DIN EN 10306 2002-04	Iron and steel - Ultrasonic testing of H beams with parallel flanges and IPE beams
AD 2000 HP 5/3 2015-04	Manufacture and testing of joints - Non-destructive testing of welded joints
DIN ISO 4386-1 2015-12	Plain bearings - Metallic multilayer plain bearings - Part 1: Non-destructive ultrasonic testing of bond of thickness $\geq 0,5$ mm
DIN EN 14127 2011-04	Non-destructive testing - Ultrasonic thickness measurement
ASME Section V Article 4 & 5 2019	ASME Boiler & Pressure Vessel Code - Section 5: Nondestructive Examination (here: <i>Ultrasonic Examination</i>)
ASME Section V Article 4 & 5 & 23 2019	Straight-Beam Ultrasonic Examination of Steel Plates (UT)
ASME Section VIII 2019	ASME Boiler & Pressure Vessel Code - Section 8: Rules for Construction of Pressure Vessels (here: <i>Ultrasonic Examination of Welds</i>)
SEP 1921 1984-12	Ultrasonic testing of forgings and forged steel bars with diameters or edge lengths of ~ 100 mm and above (<i>withdrawn standard</i>)

6 Magnet particle testing *

MH, ES, HH

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

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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

ASME Section V
Article 7 & 25
ASME Section VIII
2019 ASME Boiler & Pressure Vessel Code - Section 5: Nondestructive Examination (here: *Magnetic Particle Examination*)

7 Penetrant testing *

MH, ES, HH

DIN EN ISO 3452-1
2014-09 Non-destructive testing - Penetrant testing - Part 1: General principles

DIN EN ISO 3452-5
2009-04 Non-destructive testing - Penetrant testing - Part 5: Penetrant testing at temperatures higher than 50 °C

DIN EN ISO 3452-6
2009-04 Non-destructive testing - Penetrant testing - Part 6: Penetrant testing at temperatures lower than 10 °C

DIN EN 10228-2
2016-10 Non-destructive testing of steel forgings - Part 2: Penetrant testing

DIN EN 1371-1
2012-02 Founding - Liquid penetrant testing - Part 1: Sand, gravity die and low pressure die castings

DIN EN 1371-2
2015-04 Founding - Liquid penetrant testing - Part 2: Investment castings

ASME Section V
Article 6 & 24
ASME Section VIII
2019 ASME Boiler & Pressure Vessel Code - Section 5: Nondestructive Examination (here: *Liquid Penetrant Examination*)

8 Visual testing *

DIN EN ISO 17637
2017-04 Non-destructive testing of welds - Visual testing of fusion-welded joints MH, ES, HH

DIN EN 13018
2016-06 Non-destructive testing - Visual testing - General principles MH, ES, HH

DIN EN 1370
2012-03 Founding - Examination of surface condition MH, ES, HH

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DIN EN 10163-1 Correction 2007-05	Delivery requirements for surface condition of hot-rolled steel plates, wide flats and sections - Part 1: General requirements	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	MH, ES, HH
DIN EN 10163-3 2005-03	Delivery requirements for surface condition of hot-rolled steel plates, wide flats and sections - Part 3: Sections	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	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	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	MH, ES, HH
DIN EN ISO 945-1 2018-05	Microstructure of cast irons - Part 1: Graphite classification by visual analysis	MH
9	Digital Radiography *	HH
DIN EN ISO 17636-2 2013-05	Non-destructive testing of welds - Radiographic testing - Part 2: X- and gamma-ray techniques with digital detectors	
10	Miscellaneous test methods *	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	
ASTM E 1004 2017	Standard Test Method for Determining Electrical Conductivity Using the Electromagnetic (Eddy Current) Method	

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Abbreviations used:

ASME	American Society of Mechanical Engineers
ASTM	American Society of Testing and Materials
DIN	German Institute for Standardization
EN	European Standard
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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