Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-PL-17369-02-00 according to DIN EN ISO/IEC 17025:2018

Valid from: **15.12.2020**

Date of issue: 12.03.2021

Holder of certificate:

Schweißtechnische Lehr- und Versuchsanstalt Halle GmbH
Köthener Straße 33a, 06118 Halle (Saale)

Tests in the fields:

manual nondestructive tests (radiographic-, ultrasonic-, magnetic powder-, penetration- and visual inspection);
mechanical-technological tests of rails and their welded joints in the rail system;
mechanical-technological tests, emission spectrometric analyses and metallographical analysis on metallic materials, their alloys and welded joints as well as bolts and nuts in the metal-producing and metal-processing industry as well as in plant technology and plant construction

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 standards or equivalent testing methods listed here with different issue dates.
The testing laboratory maintains a current list of all testing procedures within the flexible scope of accreditation.

The management system requirements of DIN EN ISO/IEC 17025 are written in the language relevant to the operations of testing laboratories. Laboratories that conform to the requirements of this standard, operate generally in accordance with the principles of DIN EN ISO 9001.

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 may be found respectively in the database of accredited bodies of Deutsche Akkreditierungsstelle GmbH https://www.dakks.de/en/content/accredited-bodies-dakks.

Abbreviations used: see last page

1 Non-destructive testing methods

1.1 Radiographic tests *

DIN EN 12681-1 2018-02	Founding - Radiographic testing - Part 1: Film techniques
DIN EN 12681-2 2018-02	Founding - Radiographic testing - Part 2: Techniques with digital detectors
DIN EN ISO 17636-1 2013-05	Non-destructive testing of welds - Radiographic testing - Part 1: X- and gamma-ray techniques with film
DIN EN ISO 17636-2 2013-05	Non-destructive testing of welds - Radiographic testing - Part 2: X- and gamma-ray techniques with digital detectors

1.2 Ultrasonic tests *

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 10160 1999-09	Ultrasonic testing of steel flat product of thickness equal to or greater than 6 mm (reflection method)
DIN EN ISO 10863 2011-12	Non-destructive testing of welds - Ultrasonic testing - Use of time-of-flight diffraction technique (TOFD)
DIN EN ISO 13588 2019-07	Non-destructive testing of welds - Ultrasonic testing - Use of automated phased array technology
DIN EN ISO 16810 2014-07	Non-destructive testing - Ultrasonic testing - General principles (here: *Chapter 9*)
DIN EN ISO 16823 2014-07	Non-destructive testing - Ultrasonic testing - Transmission technique
DIN EN 10306 2002-04	Iron and steel - Ultrasonic testing of H beams with parallel flanges and IPE beams

SEP 1916 1989-12	Non-destructive testing of fusion-welded ferritic tubes
DIN EN 14127 2011-04	Non-destructive testing - Ultrasonic thickness measurement
DIN EN ISO 17640 2019-02	Non-destructive testing of welds - Ultrasonic testing - Techniques, testing levels, and assessment (here: *Chapter 7-10 and Annex A*)

1.3 Penetrant tests *

DIN EN ISO 3452-1 2014-09	Non-destructive testing - Penetrant testing - Part 1: General principles (here: *Chapter 8*)
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 2015-02	Founding - Liquid penetrant testing - Part 2: Investment castings

1.4 Magnetic particle tests *

DIN EN ISO 9934-1 2017-03	Non-destructive testing - Magnetic particle testing - Part 1: General principles (here: *Chapters 7-14*)
DIN EN 10228-1 2016-10	Non-destructive testing of steel forgings - Part 1: Magnetic particle inspection
DIN EN ISO 17638 2017-03	Non-destructive testing of welds - Magnetic particle testing
DIN EN 1369 2013-01	Founding - Magnetic particle testing

1.5 Visual tests *

DIN EN ISO 17637 2017-04	Non-destructive testing of welds - Visual testing of fusion-welded joints
DIN EN 13018 2016-06	Non-destructive testing - Visual testing - General principles (here: *Chapter 5-6*)

1.6 Cross-procedural regulations for NDT *

DVGW GW 350 2015-06	Welding Joints of Steel Pipelines for Gas and Water Supply - Manufacturing, Testing and Evaluation (here: *Chapter 9*)
DIN EN ISO 14555 2017-10	Welding - Arc stud welding of metallic materials (here: *Chapter 11 - Test*)

2 Mechanical-technological tests

2.1 Tensile-, compression- and bending tests *

DIN EN ISO 6892-1 2017-02	Metallic materials - Tensile testing - Part 1: Method of test at room temperature (here: *Method B)*
DIN EN ISO 4136 2013-02	Destructive tests on welds in metallic materials - Transverse tensile test
DIN EN ISO 5173 2012-02	Destructive tests on welds in metallic materials - Bend tests
DIN EN ISO 5178 2019-05	Destructive tests on welds in metallic materials - Longitudinal tensile test on weld metal in fusion welded joints
SEP 1390 1996-07	Weld bead bend test
DIN EN ISO 9017 2018-04	Destructive tests on welds in metallic materials - Fracture test

DIN EN ISO 9018 2016-02	Destructive tests on welds in metallic materials - Tensile test on cruciform and lapped joints

2.2 Pendulum impact test *

DIN EN ISO 148-1 2017-05	Metallic materials - Charpy pendulum impact test - Part 1: Test method

2.3 Hardness tests *

DIN EN ISO 6506-1 2015-02	Metallic materials - Brinell hardness test - Part 1: Test method (here: *HB 2,5 / 63,5 /187,5*)
DIN EN ISO 6507-1 2018-07	Metallic materials - Vickers hardness test - Part 1: Test method (here: *HV 5 - HV 30*)
DIN EN ISO 6508-1 2016-12	Metallic materials - Rockwell hardness test - Part 1: Test method (here: *Scale C*)
DIN EN ISO 9015-1 2011-05	Destructive tests on welds in metallic materials - Hardness testing - Part 1: Hardness test on arc welded joints
DIN EN ISO 9015-2 2016-10	Destructive tests on welds in metallic materials - Hardness testing - Part 2: Microhardness testing of welded joints

2.4 Fatigue test *

DIN 50100 2016-12	Load controlled fatigue testing - Execution and evaluation of cyclic tests at constant load amplitudes on metallic specimens and components

2.5 Mechanical-technological tests of nuts and bolts *

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 (here: *Chapter 9 (9.2/9.6/9.7/9.9)*)

DIN EN ISO 898-2 2012-08	Mechanical properties of fasteners made of carbon steel and alloy steel - Part 2: Nuts with specified property classes - Coarse thread and fine pitch thread (here: *Chapter 9*)

2.6 Mechanical-technological tests of rails *

DIN EN 14730-1 2017-06	Railway applications - Track - Aluminothermic welding of rails - Part 1: Approval of welding processes (here*: Annex J - Fatigue testing procedures for aluminothermic welds*)
DIN EN 14587-1 2019-08	Railway applications - Infrastructure - Flash butt welding of new rails - Part 1: R220, R260, R260Mn, R320Cr, R350HT, R350LHT, R370CrHT and R400HT grade rails in a fixed plant (here*: Annex C - Fatigue testing procedures for flash butt welds*)
DIN EN 14587-2 2009-08	Railway applications - Track - Flash butt welding of rails - Part 2: New R220, R260, R260Mn and R350HT grade rails by mobile welding machines at sites other than a fixed plant (here*: Annex C - Fatigue testing procedures for flash butt welds*)
DIN EN 14587-3 2013-01	Railway applications - Track - Flash butt welding of rails - Part 3: Welding in association with crossing construction; German version EN 14587-3:2012 (here*: Annex D - Fatigue testing procedures for flash butt welds*)

3 Optical emission spectrometry analyical (OES)

AA-22-09 2018-01	Internal instruction for optical spark emission spectrometry (OES) for the determination of the following elements in: – Iron and iron alloys (unalloyed and alloyed steels, cast iron materials), 22 elements with certified reference material (CRM) (Elements with CRM: C, Si, Mn, P, S, Cr, Mo, Ni, Al, As, B, Co, Cu, Nb, Pb, Sn, Ti, V, W, Ta, N, Fe) – Nickel and nickel alloys (unalloyed and alloyed nickel materials, 29 elements with certified reference material (CRM) (Elements with CRM: C, Si, Mn, P, S, Cr, Mo, Ni, Al, As, B, Co, Cu, Nb, Pb, Sn, Ti, V, W, Zr, Ca, Sb, Ta, Zn, Bi, Te, Fe, Ag, Se) – Aluminum and aluminum alloys (unalloyed and alloyed aluminum materials), 10 elements with certified reference material (CRM) (Elements with CRM: Si, Mn, Cr, Cu, Ti, Zn, Mg, Fe, Be, Al)

AA-22-09 2018-01	– Titanium and titanium alloys (unalloyed and alloyed titanium materials), 15 elements with certified reference material (CRM) (Elements with CRM: C, Si, Mn, Cr, Mo, Ni, Al, Co, Cu, Sn, V, Zr, N, Fe, Ti) – Magnesium and magnesium alloys (unalloyed and alloyed magnesium materials), 13 elements with certified reference material (CRM) (Elements with: Si, Mn, Ni, Al, Cu, Pb, Sn, Zr, Zn, Mg, Fe, Cd, Na)

4 Metallographical analysis *

DIN EN ISO 643 2013-05	Steels - Micrographic determination of the apparent grain size
DIN EN ISO 945-1 2019-10	Microstructure of cast irons - Part 1: Graphite classification by visual analysis
DIN EN ISO 17639 2013-12	Destructive tests on welds in metallic materials - Macroscopic and microscopic examination of welds
DIN EN 10247 2017-09	Micrographic examination of the non-metallic inclusion content of steels using standard pictures

abbreviations used:

AA-x-x…	In-house methods of the Schweißtechnischen Lehr- und Versuchsanstalt Halle GmbH
DIN	German Institute for Standardization
EN	European Standard
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
DVGW	German Gas and Water Association
SEP	Steel-iron test sheets from the Association of German Ironworkers