

Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-PL-19221-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: 01.07.2019

Date of issue: 11.07.2019

Holder of certificate:

DEKRA Incos GmbH

with the locations

Bunsenstraße 29, 85053 Ingolstadt
Kesselbodenstraße 6, 85391 Allershausen
Fettweisstraße 2d, 76189 Karlsruhe
Mausegatt 12, 47228 Duisburg
Mausegatt 18, 47228 Duisburg

Tests in the fields:

manual non-destructive testing (radiographic-, ultrasonic-, penetration-, visual-, eddy current-, leak- and magnetic particle testing) and semi-automatic series tests (radiographic- and surface crack detection) at metallic materials of the metal production and processing industry as well as in the plant engineering and in plant construction;
mechanical tests, metallographic tests, non-destructive measurement of coating thickness, corrosion tests and x-ray fluorescence analysis at metallic material;
optical emission spectroscopy of low alloyed steels, chrome-, chromium-nickel-, tool- and duplex steels

The laboratory is permitted, without being required to inform and obtain prior approval from DAkkS, to use standard test methods listed here with different issue dates or revision status updates. The laboratory maintains a current list of all test methods in a flexible scope of accreditation.

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

Abbreviations used: see last page

*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>*

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

AL = Allershausen
KA = Karlsruhe

DU I = Duisburg I
IN = Ingolstadt

DU II = Duisburg II (MP)

1 Non-destructive testing

1.1 Radiographic testing

DIN EN ISO 10893-6 2011-07	Non-destructive testing of steel tubes - Part 6: Radiographic testing of the weld seam of welded steel tubes for the detection of imperfections	AL, DU I, KA, IN
DIN EN ISO 17635 2017-04	Non-destructive testing of welds - General rules for metallic materials	AL, DU I, KA, IN
DIN EN ISO 17636-1 2013-05	Non-destructive testing of welds - Radiographic testing - Part 1: X- and gamma-ray techniques with films	AL, DU I, KA, IN
DIN EN ISO 17636-2 2013-05	Non-destructive testing of welds - Radiographic testing - Part 2: X- and gamma-ray techniques with digital detectors	DU I
DIN EN 444 1994-04	Non-destructive testing; general principles for the radiographic examination of metallic materials using X-rays and gamma-rays (<i>withdrawn standard</i>)	AL, DU I, KA, IN
DIN EN ISO 5579 2014-04	Non-destructive testing - Radiographic testing of metallic materials using film and X- or gamma rays - Basic rules	AL, DU I, KA, IN
DIN EN 12681 2003-06	Founding - Radiographic examination (<i>withdrawn standard</i>)	AL, DU I, KA, IN
DIN EN 12681-1 2018-02	Founding - Radiographic testing - Part 1: Film techniques	AL, DU I, KA, IN
DIN EN 12681-2 2018-02	Founding - Radiographic testing - Part 2: Techniques with digital detectors	AL, DU I, KA, IN
DIN EN 16407-1 2014-04	Non-destructive testing - Radiographic inspection of corrosion and deposits in pipes by X- and gamma rays - Part 1: Tangential radiographic inspection	AL, DU I, KA, IN

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DIN 25435-7 2014-01	In-service inspections for primary coolant circuit components of light water reactors - Part 7: Radiographic testing	AL, DU I, KA, IN
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1.2 Ultrasonic testing

AL, DU I, KA, IN

DIN EN ISO 10893-1 2011-07	Non-destructive testing of steel tubes - Part 1: Automated electromagnetic testing of seamless and welded (except submerged arc-welded) steel tubes for the verification of hydraulic leaktightness
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DIN EN ISO 17640 2019-02	Non-destructive testing of welds - Ultrasonic testing - Techniques, testing levels, and assessment <i>(Point 7-10 and Annex A)</i>
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DIN EN 583-3 1997-06	Non-destructive testing - Ultrasonic testing - Part 3: Transmission technique <i>(withdrawn standard)</i>
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DIN EN ISO 16823 2014-07	Non-destructive testing - Ultrasonic testing - Transmission technique
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DIN EN 583-4 2002-12	Non-destructive testing - Ultrasonic examination - Part 4: Examination for discontinuities perpendicular to the surface <i>(withdrawn standard)</i>
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DIN EN ISO 16826 2014-06	Non-destructive testing - Ultrasonic testing - Examination for discontinuities perpendicular to the surface
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DIN EN 583-5 2001-02	Non-destructive testing - Ultrasonic examination - Part 5: Characterization and sizing of discontinuities <i>(withdrawn standard)</i>
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DIN EN ISO 16827 2014-06	Non-destructive testing - Ultrasonic testing - Characterization and sizing of discontinuities
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DIN EN 583-6 2009-03	Non-destructive testing - Ultrasonic examination - Part 6: Time-of-flight diffraction technique as a method for detection and sizing of discontinuities <i>(withdrawn standard)</i>
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DIN EN ISO 16828 2014-06	Non-destructive testing - Ultrasonic testing - Time-of-flight diffraction technique as a method for detection and sizing of discontinuities
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DIN EN 10160 1999-09	Ultrasonic testing of steel flat product of thickness equal to or greater than 6 mm (reflection method)
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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 10308 2002-03	Non-destructive testing - Ultrasonic testing of steel bars
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
DIN EN 14127 2011-04	Non-destructive testing - Ultrasonic thickness measurement
DIN 25435-1 2014-01	In-service inspections for primary coolant circuit components of light water reactors - Part 1: Automated ultrasonic testing
DIN 54123 1980-10	Non-destructive Test - Ultrasonic Method of Testing Claddings, Produced by Welding, Rolling and Explosion <i>(withdrawn standard)</i>
SEP 1915 1994-09	Ultrasonic testing of steel tubes for longitudinal defects <i>(withdrawn standard)</i>
SEP 1918 1992-01	Ultrasonic testing of steel tubes for transverse defects <i>(withdrawn standard)</i>
SEP 1919 1977-06	Ultrasonic testing of steel tubes for transverse defects <i>(withdrawn standard)</i>
SEP 1920 1984-12	Ultrasonic testing of rolled semi-finished products on internal material discontinuities
SEP 1922 1985-07	Ultrasonic testing of forgings of ferritic steel <i>(withdrawn standard)</i>

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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
SEP 1924 1989-10	Ultrasonic testing of castings of nodular cast iron <i>(zurückgezogene Norm)</i>
DIN EN 583-1 1998-12	Non-destructive testing - Ultrasonic examination - Part 1: General principles <i>(withdrawn standard)</i>
DIN EN ISO 16810 2014-07	Non-destructive testing - Ultrasonic testing - General principles

Only at the locations IN, DU I

DIN EN ISO 13588 2013-11	Non-destructive testing of welds - Ultrasonic testing - Use of automated phased array technology
DIN EN ISO 10863 2011-12	Non-destructive testing of welds - Ultrasonic testing - Use of time-of-flight diffraction technique (TOFD)

1.3 Magnetic particle testing

AL, DU I, KA, IN

DIN EN ISO 9934-1 2017-03	Non-destructive testing - Magnetic particle testing - Part 1: General principles
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
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
DIN 25435-2 2014-01	In-service inspections for primary coolant circuit components of light water reactors - Part 2: Magnetic particle and penetrant testing

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SEP 1935
1982-06 Seam testing of castings of steel - Magnetic powder test
(*withdrawn standard*)

1.4 Penetrant testing

AL, DU I, KA, IN

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

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

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

SEP 1936
1982-06 Seam testing of castings of steel - Penetration testing
(*withdrawn standard*)

1.5 Visual testing

AL, DU I, KA, IN

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

DIN EN 1370
2012-03 Founding - Examination of surface condition

DIN EN 13018
2016-06 Non-destructive testing - Visual testing - General principles

DIN 25435-4
2014-01 In-service inspections for primary coolant circuit components of light water reactors - Part 4: Visual testing

1.6 Eddy current testing

AL, DU I, KA, IN

DIN EN ISO 15549
2011-03 Non-destructive testing - Eddy current testing - General principles

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DIN EN ISO 10893-1 2011-07	Non-destructive testing of steel tubes - Part 1: Automated electromagnetic testing of seamless and welded (except submerged arc-welded) steel tubes for the verification of hydraulic leaktightness
DIN EN 1711 2000-03	Non-destructive examination of welds - Eddy current examination of welds by complex plane analysis <i>(withdrawn standard)</i>
DIN EN ISO 17643 2015-12	Non-destructive testing of welds - Eddy current examination of welds by complex plane analysis

1.7 Leak testing

DIN EN 1593 1999-11	Non-destructive testing - Leak testing - Bubble emission techniques	AL, DU I, KA, IN
DIN EN 1779 1999-10	Non-destructive testing - Leak testing - Criteria for the method and technique selection	AL, DU I, KA, IN
DIN EN 13184 2001-07	Non-destructive testing - Leak test - Pressure change method	AL, DU I, KA, IN
DIN EN 13185 2001-07	Non-destructive testing - Leak testing - Tracer gas method <i>(withdrawn standard)</i>	DU I, KA, IN
DIN EN ISO 20485 2018-05	Non-destructive testing - Leak testing - Tracer gas method	DU I, KA, IN

1.8 Coat thickness measuring

DU I

DIN EN ISO 2178 2016-11	Non-magnetic coatings on magnetic substrates - Measurement of coating thickness - Magnetic method
DIN EN ISO 2360 2017-12	Non-conductive coatings on non-magnetic electrically conductive base metals - Measurement of coating thickness - Amplitude-sensitive eddy-current method

1.9 Mobile hardness testing

AL, DU I, KA, IN

DIN 50156-1 2007-07	Metallic materials - Leeb hardness test - Part 1: Test method <i>(withdrawn standard)</i>
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DIN EN ISO 16859-1 2016-02	Metallic materials - Leeb hardness test - Part 1: Test method
DIN 50157-1 2008-04	Metallic materials - Hardness testing with portable measuring instruments operating with mechanical penetration depth - Part 1: Test method
DIN 50158-1 2008-07	Metallic materials - Hardness testing with portable measuring instruments operating with electrical penetration depth - Part 1: Test method
DIN 50159-1 2015-01	Metallic materials - Hardness testing with the UCI method - Part 1: Test method

1.10 Cross-procedural standards for NDT

AL, DU I, KA, IN

DIN EN ISO 17635 2017-04	Non-destructive testing of welds - General rules for metallic materials
DIN 27201-7 2014-05	State of railway vehicles - Basic principles and production technology - Part 7: Non-destructive testing
AD 2000-Merkblatt HP 5/3 Anlage 1 2015-04	Non-destructive testing of welded joints - Minimum requirements for non-destructive testing methods
ASME BPVC Section V 2017	Subsection A: Non-destructive Examination Art. 2: Radiographic Examination Art. 4: Ultrasonic Examination Methods for Welds Art. 5: Ultrasonic Examination Methods for Materials Art. 6: Liquid Penetrant Examination Art. 7: Magnetic Particle Examination
DVGW GW 350 2015-06	Welding Joints of Steel Pipelines for Gas and Water Supply - Manufacturing, Testing and Evaluation
KTA 3201.3 2017-11	Components of the Reactor Coolant Pressure Boundary of Light Water Reactors - Part 3: Manufacture (chapter 12: Non-destructive testing and Annex C to D) (withdrawn standard)
KTA 3201.4 2016-11	Components of the reactor coolant pressure boundary of light water reactors - Part 4: Inservice inspections and operational monitoring (chapter 4.2 and 7.3: Non-destructive testing)

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KTA 3211.3 2017-11	Pressure and Activity Retaining Components of Systems Outside the Primary Circuit - Part 3: Manufacture <i>(chapter 11: Non-destructive testing as well as Annex D and E)</i>
KTA 3211.4 2017-11	Pressure and Activity Retaining Components of Systems Outside the Primary Circuit - Part 3: Manufacture <i>(chapter 4.2, 4.3 and 7.3: Non-destructive testing)</i>
SEP 1914 1983-08	Non-destructive testing of fusion-welded seams in pipes of stainless steels
SEP 1916 1989-12	Non-destructive testing of fusion welded ferritic steel tubes
SEP 1917 1994-09	Non-destructive testing of resistance welded pipes of ferritic steels

2 Destructive testing

2.1 Tensile testing

DU II

DIN EN ISO 4136 2013-02	Destructive tests on welds in metallic materials - Transverse tensile test
DIN EN ISO 6892-1 2017-02	Metallic materials - Tensile testing - Part 1: Method of test at room temperature <i>(method B)</i>
DIN EN ISO 6892-2 2018-09	Metallic materials - Tensile testing - Part 2: Method of test at elevated temperature <i>(method B)</i>
ASTM A 370a 2017	Standard Test Methods and Definitions for Mechanical Testing of Steel Products <i>(here: Testing of Tension-, Bend-, Impact-, Brinell-, Rockwell- and Portable Hardness)</i>
ASTM E 21 2017	Standard Test Methods for Elevated Temperature Tension Tests of Metallic Materials
ASTM E 8/E8Ma 2016	Standard Test Methods for Tension Testing of Metallic Materials

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2.2 Hardness test

DU II

DIN EN ISO 6508-1 2016-12	Metallic materials - Rockwell hardness test - Part 1: Test method (<i>scale C</i>)
DIN EN ISO 9015-1 2011-05	Destructive tests on welds in metallic materials - Hardness testing - Part 1: Hardness test on arc welded joints
ASTM E 10 2018	Standard Test Method for Brinell Hardness of Metallic Materials
ASTM E 18a 2018	Standard Test Methods for Rockwell Hardness of Metallic Materials
DIN EN ISO 6506-1 2015-02	Metallic materials - Brinell hardness test - Part 1: Test method
ASTM E 384 2017	Standard Test Methods for Microindentation Hardness of Materials
ASTM E 92 2017	Standard Test Methods for Vickers Hardness and Knoop Hardness of Metallic Materials
DIN EN ISO 6507-1 2018-07	Metallic materials - Vickers hardness test - Part 1: Test method

2.3 Impact test

DU II

DIN EN ISO 9016 2013-02	Destructive tests on welds in metallic materials - Impact tests - Test specimen location, notch orientation and examination
DIN EN ISO 148-1 2017-05	Metallic materials - Charpy pendulum impact test - Part 1: Test method
DIN EN ISO 148-1 Supplement 1 2014-02	Metallic materials - Charpy pendulum impact test - Part 1: Test method - Supplement 1: Special test pieces
ASTM E 23 2018	Standard Test Methods for Notched Bar Impact Testing of Metallic Materials

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2.4 Technological test

DU II

DIN EN ISO 5173 2012-02	Destructive tests on welds in metallic materials - Bend tests
DIN EN ISO 7438 2016-07	Metallic materials - Bend test
DIN EN ISO 7799 2000-07	Metallic materials - Sheet and strip 3 mm thick or less - Reverse bend test
DIN EN ISO 8492 2014-03	Metallic materials - Tube - Flattening test (<i>withdrawn standard</i>)
DIN EN ISO 8493 2004-10	Metallic materials - Tube - Drift-expanding test
DIN EN ISO 8494 2014-03	Metallic materials - Tube - Flanging test
DIN EN ISO 8495 2014-03	Metallic materials - Tube - Ring-expanding test
DIN EN ISO 8496 2014-03	Metallic materials - Tube - Ring tensile test
DIN EN 1320 1996-12	Destructive tests on welds in metallic materials - Fracture test (<i>withdrawn standard</i>)
DIN EN ISO 9017 2018-04	Destructive tests on welds in metallic materials - Fracture test
ASTM E 190 2014	Standard Test Method for Guided Bend Test for Ductility of Welds
ASTM E 290 2014	Standard Test Methods for Bend Testing of Material for Ductility

3 Analytical material testing

3.1 Metallographic examinations

DU II

ISO 4967 2013-07	Steel - Determination of content of non-metallic inclusions - Micrographic method using standard diagrams
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DIN EN ISO 643 2013-05	Steels - Micrographic determination of the apparent grain size
DIN EN ISO 945-1 2018-05	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 1321 1996-12	Destructive tests of welds in metallic materials - Macroscopic and microscopic examination of welds <i>(withdrawn standard)</i>
DIN 50602 1985-09	Metallographic examination - microscopic examination of special steels using standard diagrams to assess the content of non-metallic inclusions <i>(withdrawn standard)</i>
DIN 54150 1977-08	Non-destructive testing - impression methods for surface examination (Replica-technique) <i>(withdrawn standard)</i>
ASTM E 112 2013	Standard Test Methods for Determining Average Grain Size
ASTM E 562 2011	Standard Test Method for Determining Volume Fraction by Systematic Manual Point Count
SEP 1520 1998-09	Microscopic examination of carbide structure in steels by means of dia series
ASTM E 45 2018	Standard Test Methods for Determining the Inclusion Content of Steel

3.2 Corrosion tests

DU II

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)
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

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ASTM A 262 2015	Standard Practices for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels
ASTM A 923 2014	Standard Test Methods for Detecting Detrimental Intermetallic Phase in Duplex Austenitic/Ferritic Stainless Steels
ASTM G 28 2002	Standard Test Methods for Detecting Susceptibility to Intergranular Corrosion in Wrought, Nickel-Rich, Chromium-Bearing Alloys
ASTM G 48-11 2011	Standard Test Methods for Pitting and Crevice Corrosion Resistance of Stainless Steels and Related Alloys by Use of Ferric Chloride Solution
SEP 1877 1994-07	Test of the resistance of high-alloy, corrosion-proof materials against intercrystalline corrosion

3.3 X-ray fluorescence analysis

IN, DU I, KA

K04.02.083 2013-12	Positive material identification (PMI) using X-Ray emission analysis
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3.4 Optical emissions spectroscopy

DU II

0129-10-AA 2018-06	Optical emission spectroscopy (spark discharge, 24 chemical elements) for elemental analysis of iron based materials, low and high alloyed steels, tool, duplex and stainless steels - (Specifically: Low alloyed steel - C, Si, Mn, P, S, Cr, Mo, Ni, Al, As, Co, Cu, N, V - High alloyed steel- C, Si, Mn, P, S, Cr, Mo, Ni, Al, As, B, Co, Cu, N, Sn, Ti, V - Duplex steel - C, Si, Mn, P, S, Cr, Mo, Ni, B, Co, Cu, Fe, N, Pb, Ti, V)
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Abbreviations used:

AD	Working group pressure vessels
ASME BPVC	American Society for Metrological Engineering - Boiler & Pressure Vessel Code
ASTM	American Society for Testing Materials
DIN	German Institute for Standardization
DVGW	German association of gas- and water industry
EN	European Standard
ISO	International Organization for Standardization
KTA	Nuclear Safety Standards Commission
SEL	Steel-iron-delivery conditions of the Association of German Steel
VBG	Guidelines of VGB PowerTech Service GmbH

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