Deutsche Akkreditierungsstelle

Annex to the Partial Accreditation Certificate D-PL-18511-01-02 according to DIN EN ISO/IEC 17025:2018

Valid from: **20.01.2023**

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This annex is a part of the accreditation certificate D-PL-18511-01-00.

Holder of partial accreditation certificate:

TÜV Rheinland Werkstoffprüfung GmbH
Im Kraftwerk Jänschwalde, 03182 Peitz

at locations:

Am Grauen Stein, 51105 Köln
Hertzstraße 70, 13158 Berlin

The testing laboratory meets the minimal requirements of DIN EN ISO/IEC 17025:2018 and, if applicable, additional legal and normative requirements, including those in relevant sectoral schemes, in order to carry out the conformity assessment activities listed below.

The management system requirements of DIN EN ISO/IEC 17025 are written in the language relevant to the operations of testing laboratories and confirm generally with the principles of DIN EN ISO 9001.

Strain measurement and mobile hardness testing on metallic materials within metal producing and metal working industry, within system engineering as well as within engineering industry; corrosion examination, mechanic-technological and metallographic examination and replica technique on metallic materials; optical spark emission spectrometry (OES) of steel and iron materials, nickel-base, copper-base and aluminium materials as well as hardness testing on metallic materials

This certificate annex 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 given scope of accreditation can be found in the directory of accredited bodies maintained by Deutsche Akkreditierungsstelle GmbH at https://www.dakks.de.

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

Berlin (B) Köln (K)

1 Strain measurement on metallic materials within metal producing and metal working industry, within system engineering as well as within engineering industry *

VDI/VDE/GESA 2635 Sheet 2 2019-12	Experimental structure analysis - Metallic bonded resistance strain gages - Characteristics and testing conditions	K
VdTÜV-data sheet 803 [1] 2008-10	Guidelines for the execution and evaluation of elongation measurements by wire strain gauges (DMS)	K

2 Mechanic-technological examinations on metallic materials *

2.1 Tensile- and creep tests

DIN EN ISO 4136 2022-09	Destructive tests on welds in metallic materials - Transverse tensile test	K
DIN EN ISO 9017 2018-04	Destructive tests on welds in metallic materials - Fracture test	K
DIN EN ISO 6892-1 2020-06	Metallic materials - Tensile testing - Part 1: Method of test at room temperature (here: *Procedure B*)	K
DIN EN ISO 6892-2 2018-09	Metallic materials - Tensile testing - Part 2: Method of test at elevated temperature	K
ASTM E21-20 2020	Standard Test Methods for Elevated Temperature Tension Tests of Metallic Materials	K
DIN EN ISO 204 2019-04	Metallic materials - Uniaxial creep testing in tension - Method of test	K

DIN EN ISO 5178 2019-05	Destructive tests on welds in metallic materials - Longitudinal tensile test on weld metal in fusion welded joints	K
DIN EN ISO 8493 2004-10	Metallic materials - Tube - Drift-expanding test	K
DIN EN ISO 8496 2014-03	Metallic materials - Tube - Ring tensile test	K
DIN EN ISO 6892-3 2015-07	Metallic materials - Tensile testing - Part 3: Method of test at low temperature	K
VdTÜV-data sheet 1158 [1] 1985-06	Procedure test for welding tubes into tube plates (here: *Tube pull-out and push-out test*) *(withdrawn document)*	K
ASTM E8/E8M 2022-07.	Standard Test Methods for Tension Testing of Metallic Materials	K

2.2 Impact and bending tests*

DIN EN ISO 5173 2012-02	Destructive tests on welds in metallic materials - Bend tests	K
DIN EN ISO 148-1 2017-05	Metallic materials - Charpy pendulum impact test - Part 1: Test method	K
DIN EN ISO 7438 2021-03	Metallic materials - Bend test	K
DIN EN ISO 8492 2014-03	Metallic materials - Tube - Flattening test	K
ASTM E 23-18 2018-11	Standard Test Methods for Notched Bar Impact Testing of Metallic Materials	K

2.3 Hardness tests*

DIN EN ISO 6506-1 2015-02	Metallic materials - Brinell hardness test - Part 1: Test method	B, K
DIN EN ISO 6507-1 2018-07	Metallic materials - Vickers hardness test - Part 1: Test method	B, K

DIN EN ISO 6508-1 2016-12	Metallic materials - Rockwell hardness test - Part 1: Test method	K
DIN EN ISO 16859-1 2016-02	Metallic materials - Leeb hardness test - Part 1: Test method	B, K
DIN 50159-1 2022-06	Metallic materials - Hardness testing with the UCI method - Part 1: Test method	B, K
ASTM E10-18 2018	Standard Test Methods for Brinell Hardness of Metallic Materials	K
ASTM E18-22 2022-05	Standard Test Methods Rockwell Hardness of Metallic Materials	K
ASTM E92-17 2017	Standard Test Methods for Vickers Hardness and Knoop Hardness of Metallic Materials	K

3 Corrosion tests*

DIN EN ISO 9227 2017-07	Corrosion tests in artificial atmospheres - Salt spray tests	K
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)	K
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	K
DIN EN ISO 6270-2 2018-04	Paints and varnishes - Determination of resistance to humidity - Part 2: Condensation (in-cabinet exposure with heated water reservoir)	K
DIN EN ISO 10289 2001-04	Methods for corrosion testing of metallic and other inorganic coatings on metallic substrates - Rating of test specimens and manufactured articles subjected to corrosion tests	K
ASTM A 262-15(2021) 2021-09	Standard Practices for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels	K

DIN EN 60068-2-11 2000-02	Environmental testing - Part 2: Tests; test Ka: Salt mist *(withdrawn standard)*	K
DIN EN ISO 9400 1995-12	Nickel-based alloys - Determination of resistance to intergranular corrosion	K
ASTM A 923-22 2022	Standard Test Methods for Detecting Detrimental Intermetallic Phase in Duplex Austenitic/Ferritic Stainless Steels	K
ASTM G 48-11(2020)E1 2020-12	Standard Test Methods for Pitting and Crevice Corrosion Resistance of Stainless Steels and Related Alloys by Use of Ferric Chloride Solution	K
ASTM G 28-22 2022	Standard Test Methods for Detecting Susceptibility to Intergranular Corrosion in Wrought, Nickel-Rich, Chromium-Bearing Alloys	K
VDA sheet 621-415 [1] 1982	Cyclic corrosion testing of materials and components in automotive construction (*withdrawn document)*	K
SEP 1877 1994-07	Test of the resistance of high-alloy, corrosion-proof materials against intercrystalline corrosion	K

4 Metallographic analysis*

DIN EN ISO 643 2020-06	Steels - Micrographic determination of the apparent grain size	K
DIN EN ISO 2624 1995-08	Copper and copper alloys - Estimation of average grain size	K
DIN 54150 1977-08	Non-destructive testing; impression methods for surface examination (Replica-technique) *(withdrawn standard)*	K
DIN EN ISO 9015-1 2011-05	Destructive tests on welds in metallic materials - Hardness testing - Part 1: Hardness test on arc welded joints	K
DIN EN ISO 2639 2003-04	Steels - Determination and verification of the depth of carburized and hardened cases *(withdrawn standard)*	K
DIN 50190-3 1979-03	Hardness depth of heat-treated parts; determination of the effective depth of hardening after nitriding *(withdrawn standard)*	K

DIN EN ISO 8249 2018-11	Welding - Determination of Ferrite Number (FN) in austenitic and duplex ferritic-austenitic Cr-Ni stainless steel weld metals	K
ASTM E 562-19 2019	Standard Test Method for Determining Volume Fraction by Systematic Manual Point Count	K
AVS D 63/50 [1] 2012-06	Determination of the content of delta ferrit in austenic steel with ferritic segregation (procedure of AREVA NP GmbH)	K
VDTÜV-data sheet 451 83/6 [1] 1983-08	Surfaceanalysis on creep stress tested components in compliants to TRD 508	K
ASTM E 112-13 (2021) 2021	Standard Test Methods for Determining Average Grain Size	K
ASTM E 45-18a 2018	Standard Test Methods for Determining the Inclusion Content of Steel	K
SEP 1572 2019-03	Microscopic testing of free-cutting steels for sulfide non-metallic inclusions using standard images	K
ASTM A 923 2022	Standard Test Methods for Detecting Detrimental Intermetallic Phase in Duplex Austenitic/Ferritic Stainless Steels	K
ASTM A 262-15(2021) 2021-09	Standard Practice for Detecting Susceptibility to intergranular Attack in Austenitic Stainless Steels	K
ASTM A342 / A342M 2021	Standard Test Methods for Permeability of Weakly Magnetic Materials	K
ISO 4967 2013-07	Steel - Determination of content of non-metallic inclusions - Micrographic method using standard diagrams	K
EURONORM 103 1971	Microscopic determination of the ferrite or austenitic grain size of steels (*withdrawn document)*	K
ISO 4968 2022-03	Steel - Macrographic examination by sulphur print (Baumann method)	K
DIN EN ISO 945-1 2019-10	Microstructure of cast irons - Part 1: Graphite classification by visual analysis	K
DIN EN 10328 2005-04	Iron and steel - Determination of the conventional depth of hardening after surface heating *(withdrawn standard)*	K

DIN EN ISO 18203 2022-07	Steel - Determination of the thickness of surface-hardened layers	K

5 optical spark emission spectrometry

QM-PA-31 2020-02	optical spark emission spectrometry (OES) for examination of iron- and nickel-base materials with elements (18 elements) C, Si, Mn, P, S, Cr, Mo, Ni, V, Al, Cu, Co, Pb, Nb, Ti, B, W, N – copper-base materials with elements (17 elements) Ag, Al, As, Be, Bi, Co, Cr, Fe, Mg, Mn, Ni, Pb, Si, Sn, Zn, Cd, Zr – aluminium materials with elements (23 elements) Ag, B, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, Mg, Mn, Ni, Pb, Si, Sn, Sr, Ti, V, Zn, Zr, In	K

Abbreviations used:

ASTM	American Society for Testing and Materials
AVS	Standard operation procedure
DIN	German Institute for Standardization
EN	European Standard
GESA	Association of experimental microstructure analysis
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
SEP	Steel and iron test sheet of the Association of German Steel Institute
VDA	German Association of the Automotive Industry
VDI	Association of German Engineers
VdTÜV	Association of TÜVs
VdS	guideline or regultaion of VdS (Verband der Sachsicherer) Schadenverhütung GmbH

[1] not within the flexibel scope