Deutsche Akkreditierungsstelle

Annex to the Partial Accreditation Certificate D-PL-14153-02-01 according to DIN EN ISO/IEC 17025:2018

Valid from: **19.12.2022**

Date of issue: 19.12.2022

This annex is a part of the accreditation certificate D-PL-14153-02-00.

Holder of partial accreditation certificate:

TÜV SÜD Industrie Service GmbH
Westendstr. 199, 80686 München

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.

At the locations:

Stuttgart branch, Filderstadt
Gottlieb-Daimler-Str. 7, 70794 Filderstadt

Leipzig branch, Grimma – Gewerbegebiet Grimma Süd
Bahnhofstr. 5, Gebäude 48, 04668 Grimma

München branch,
Ridlerstraße 65, 80339 München

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.

Tests in the fields:

Mechanical-technological and metallographic tests as well as corrosion tests on metallic materials;
scanning electron microscopy on metallic and non-metallic materials;
testing of pipes for gas and drinking water installations;
spark emission spectrometry on low and high alloy steels, aluminum and nickel alloys;

Mechanical-technological tests and corrosion tests as well as environmental simulation tests of plastics and organic materials;

The procedures are identified by the following symbols of the sites where they are performed:

F - Filderstadt G - Grimma M - Munich

Within the accreditation areas marked with *, the testing laboratory is permitted to use the standardized or equivalent test methods listed here with different versions without the prior information and approval of the DAkkS. The testing laboratory has a current list of all testing procedures in the flexible accreditation area.

Content

1 Mechanical-Technological Tests

1.1 Tensile Tests *

DIN EN ISO 4136 2013-02	Destructive tests on welds in metallic materials - Transverse tensile test	F, G
DIN EN ISO 5178 2019-05	Destructive tests on welds in metallic materials - Longitudinal tensile test on weld metal in fusion welded joints	F, G
DIN EN ISO 6892-1 2020-06	Metallic materials - Tensile testing – Part 1: Method of test at room temperature; F, M only method B	F, G, M
DIN EN ISO 6892-2 2018-09	Metallic materials - Tensile testing – Part 2: Method of test at elevated temperature F only method B	F, G
DIN EN ISO 14273 2016-11	Resistance welding - Destructive testing of welds - Specimen dimensions and procedure for tensile shear testing resistance spot and embossed projection welds	F
DIN 50162 1978-09	Testing of clad steels; determination of shear strength between cladding metal and parent metal in shear test	G

1.2 Bend and Pressure Tests *

DIN EN ISO 5173 2012-02	Destructive tests on welds in metallic materials - Bend tests	F, G
DIN EN ISO 7438 2021-03	Metallic materials - Bend test	G
DIN EN ISO 9017 2018-04	Destructive tests on welds in metallic materials - Fracture test	F, G
DIN 50106 2016-11	Testing of metallic materials - Compression test at room temperature	M

1.3 Charpy Impact Tests *

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

1.4 Pipe Tests *

DIN EN ISO 8491 2004-10	Metallic materials - Tube (in full section) - Bend test	F
DIN EN ISO 8492 2014-03	Metallic materials – Tube - Flattening test	F, G
DIN EN ISO 8493 2004-10	Metallic materials – Tube - Drift-expanding test	F
DIN EN ISO 8494 2014-03	Metallic materials – Tube - Flanging test	F
DIN EN ISO 8495 2014-03	Metallic materials – Tube - Ring-expanding test	F
DIN EN ISO 8496 2014-03	Metallic materials – Tube - Ring tensile test	F, G

1.5 Hardness Tests *

DIN EN ISO 2639 2003-04	Steels - Determination and verification of the depth of carburized and hardened cases	F, G, M
DIN EN ISO 18203 2022-07	Steel - Determination of the thickness of surface-hardened layers	F, G, M
DIN EN ISO 6506-1 2015-02	Metallic materials - Brinell hardness test – Part 1: Test method F: HBW 2,5/187,5; HBW 2,5/62,5 G: HBW 2,5/187,5; HBW 2,5/62,5 M: HBW2,5/187,5; HBW 2,5/62,5; HBW2,5/31,25	F, G, M
DIN EN ISO 6507-1 2018-07	Metallic materials - Vickers hardness test – Part 1: Test method F: HV 0,5; HV 1; HV 10 G: HV 1; HV 5; HV 10 M: HV 0,5; HV 1; HV 5; HV 10; HV 30	F, G, M

DIN EN ISO 6508-1 2016-12	Metallic materials - Rockwell hardness test – Part 1: Test method G: HRC M: HRC	G, M
DIN EN ISO 9015-1 2011-05	Destructive tests on welds in metallic materials - Hardness testing – Part 1: Hardness test on arc welded joints	F, G
DIN EN 10328 2005-04	Iron and steel - Determination of the conventional depth of hardening after surface heating	F, M
DIN 50159-1 2015-01	Metallic materials - Hardness testing with the UCI method - Part 1: Test method	G, M
DIN 50190-3 1979-03	Hardness depth of heat-treated parts; determination of the effective depth of hardening after nitriding	F, G, M

1.6 Testing of Weld and Solder Joints *

DIN EN 12797 2000-12	Brazing - Destructive tests of brazed joints	G

2 Metallography and Scanning Electron Microscopy Examinations

2.1 Metallography

DIN EN ISO 643* 2020-06	Steels - Micrographic determination of the apparent grain size	F, M
DIN EN ISO 945-1* 2019-10	Microstructure of cast irons – Part 1: Graphite classification by visual analysis	M
DIN EN ISO 3887* 2018-05	Steels - Determination of the depth of decarburization	M
DIN EN ISO 17639* 2013-12	Destructive tests on welds in metallic materials - Macroscopic and microscopic examination of welds	F, G
DIN EN 10247* 2017-09	Micrographic examination of the non-metallic inclusion content of steels using standard pictures	M

DIN 50602* 1985-09	Metallographic examination; microscopic examination of special steels using standard diagrams to assess the content of non-metallic inclusions *(withdrawn)*	F
ISO 3057* 1998-03	Non-destructive testing - Metallographic replica techniques of surface examination	G
SEP 1571 Teil 1* 2017-08	Evaluation of inclusions in special steels based on their surface areas – Part 1: Basics	F
SEP 1571 Teil 2* 2017-08	Evaluation of inclusions in special steels based on their surface areas – Part 2: Methods K and M	F
ASTM E 112-13* 2013	Standard Test Methods for Determining Average Grain Size	F
VGB-S-517-00 2014-11	Guideline for evaluating the structure formation and creep damage of high-temperature steels for high-pressure pipelines and boiler components and their welded joints (Richtreihen zur Bewertung der Gefügeausbildung und Zeitstandschädigung warmfester Stähle für Hochdruckrohrleitungen und Kesselbauteile und deren Schweißverbindungen) (*not within flexible scope*)	M

2.2 Corrosions Tests *

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	F

2.3 Scanning Electron Microscopy

MUC-WMR-A 004 2020-01	Performance of length measurements using a scanning electron microscope (Durchführung von Längenmessungen mittels Rasterelektronenmikroskop) (*not within flexible scope*)	M
DIN ISO 22309* 2015-11	Microbeam analysis - Quantitative analysis using energy-dispersive spectrometry (EDS) for elements with an atomic number of 11 (Na) or above	M

2.4 X-Ray Fluorescence Analysis

MUC-WMR-A 016 2020-10	X-ray fluorescence analysis (XRF) for stationary and mobile use for the quantitative determination of AL, Fe, Ni, Cu based materials	M

3 Testing of Pipes for Gas and Drinking Water Installations *

DIN EN 10240 1998-02	Internal and/or external protective coatings for steel tubes - Specification for hot dip galvanized coatings applied in automatic plants	F, M
DIN EN 10255 2007-07	Non-Alloy steel tubes suitable for welding and threading - Technical delivery conditions	F, M
DVGW W 534 2015-07	Pipe connectors and pipe joints in drinking water installation (without 12.6 and 12.7)	F, M
DVGW GW 541 2004-10	Stainless steel pipes for gas and drinking water installations – Requirements and tests	F, M

4 Optical Emission Spectrometry on Low- and High-Alloy Steels, Aluminium and Nickel Alloys

QMA-Nr. MUC-WMR-A008 2020-10	Optical emission spectrometry (OES) to determine 25 elements in steel and iron materials and nickel-based alloys, 18 elements in copper-based alloys and 17 elements in aluminium -based alloys	M
LEI-A002 2021-10	Spectral analysis of Fe and Ni based alloys with "Spectrolab" spectrometer	G

5 Examination of Plastic Materials and Organic Materials

5.1 Thermic Tests at Plastic Materials *

DIN EN ISO 75-1 2020-06	Plastics - Determination of temperature of deflection under load - Part 1: General test method	M

DIN EN ISO 105-A05 1997-07 ISO 105-A05 1996-04	Textiles - Tests for colour fastness - Part A05: Instrumental assessment of change in colour for determination of grey scale rating	M
DIN EN ISO 175 2011-03	Plastics - Methods of test for the determination of the effects of immersion in liquid chemicals	M
DIN EN ISO 306 2014-03	Plastics - Thermoplastic materials - Determination of Vicat softening temperature (VST)	M
DIN EN ISO 1133-1 2012-03	Plastics - Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics – Part 1: Standard method	M
DIN EN ISO 1133-2 2012-03	Plastics - Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics – Part 2: Method for materials sensitive to time-temperature history and/or moisture	M
DIN EN ISO 1172 1998-12	Textile-glass-reinforced plastics - Prepregs, moulding compounds and laminates - Determination of the textile-glass and mineral-filler content; calcination methods	M
DIN EN ISO 2884-1 2006-09	Paints and varnishes - Determination of viscosity using rotary viscometers - Part 1: Cone-and-plate viscometer operated at a high rate of shear	M
DIN EN ISO 4892-2 2021-11	Plastics - Methods of exposure to laboratory light sources - Part 2: Xenon-arc lamps	M
DIN EN ISO 4892-3 2016-10	Plastics - Methods of exposure to laboratory light sources - Part 3: Fluorescent UV lamps	M
DIN EN ISO 11357-2 2020-08	Plastics - Differential scanning calorimetry (DSC) - Part 2: Determination of glass transition temperature and glass transition step height	M
DIN EN ISO 11357-3 2018-07	Plastics - Differential scanning calorimetry (DSC) - Part 3: Determination of temperature and enthalpy of melting and crystallization	M
		M

DIN EN ISO 11357-6 2018-07	Plastics - Differential scanning calorimetry (DSC) - Part 6: Determination of oxidation induction time (isothermal OIT) and oxidation induction temperature (dynamic OIT)	
DIN EN ISO 11358-1 2014-10	Plastics - Thermogravimetry (TG) of polymers - Part 1: General principles	M
DIN EN 60695-11-10 2014-10 VDE 0471-11-10 2014-10 Berichtigung 2015-10	Fire hazard testing - Part 11-10: Test flames - 50 W horizontal and vertical flame test methods	M
DIN ISO 815-1 2022-04	Rubber, vulcanized or thermoplastic - Determination of compression set - Part 1: At ambient or elevated temperatures	M
DIN 51007 2019-04	Thermal analysis - Differential thermal analysis (DTA) and differential scanning calorimetry (DSC) - General Principles	M
DIN 53497 2017-04	Testing of plastics - Hot storage test on mouldings made of thermoplastic moulding materials without external mechanical stressing	M
DIN 75220 1992-11	Ageing of automotive components in solar simulation units	M

5.2 Other material tests on plastic materials *

DIN EN ISO 178 2019-08	Plastics - Determination of flexural properties	M
DIN EN ISO 179-1 2010-11	Plastics - Determination of Charpy impact properties - Part 1: Non-instrumented impact test	M
DIN EN ISO 527-2 2012-06	Plastics - Determination of tensile properties - Part 2: Test conditions for moulding and extrusion plastics	M
DIN EN ISO 527-3 2019-02	Plastics - Determination of tensile properties - Part 3: Test conditions for films and sheets	M

DIN EN ISO 527-4 2022-03	Plastics - Determination of tensile properties - Part 4: Test conditions for isotropic and orthotropic fibre-reinforced plastic composites	M
DIN EN ISO 527-5 2010-01	Plastics - Determination of tensile properties - Part 5: Test conditions for unidirectional fibre-reinforced plastic composites	M
DIN EN ISO 1183-1 2019-09	Plastics - Methods for determining the density of non-cellular plastics – Part 1: Immersion method, liquid pyknometer method and titration method *(only 5.1)*	M
DIN EN ISO 2409 2020-12	Paints and varnishes - Cross-cut test	M
DIN EN ISO 2808 2019-12	Paints and varnishes - Determination of film thickness 4.2.4 (Procedure 1A), 5.2.5 (Procedure 4B), 5.4.4 (Procedure 6A), 5.4.5 (Procedure 6B), 5.5.4 (Procedure 7A), 5.5.6 (Procedure 7B2)	M
DIN EN ISO 2815 2003-10	Paints and varnishes - Buchholz indentation test	M
DIN EN ISO 4624 2016-08	Paints and varnishes - Pull-off test for adhesion	M
DIN EN ISO 14125 2011-05	Fibre-reinforced plastic composites - Determination of flexural properties (only procedure A)	M
DIN EN 59 2016-06	Glass reinforced plastics - Determination of indentation hardness by means of a Barcol hardness tester	M
DIN ISO 34-1 2016-09	Rubber, vulcanized or thermoplastic - Determination of tear strength - Part 1: Trouser, angle and crescent test pieces	M
DIN ISO 48-4 2021-02	Rubber, vulcanized or thermoplastic - Determination of hardness - Part 4: Indentation hardness by durometer method	M
ISO 37 2017-11	Rubber, vulcanized or thermoplastic - Determination of tensile stress-strain properties	M

BS 1970 2012-12	Hot water bottles manufactured from rubber and PVC – Specification *(only 4,5, 6.1-6.3, 6.4.3, 6.5.2-6.5.3, 6.6, 7, 8, 9)*	M

5.3 Testing of Piping, Fittings and Sheets Made from Thermoplastics *

DIN EN ISO 1167-1 2006-05	Thermoplastics pipes, fittings and assemblies for the conveyance of fluids - Determination of the resistance to internal pressure – Part 1: General method	M
DIN EN ISO 1167-2 2006-05	Thermoplastics pipes, fittings and assemblies for the conveyance of fluids - Determination of the resistance to internal pressure – Part 2: Preparation of pipe test pieces	M
DIN EN ISO 2505 2005-08	Thermoplastics pipes - Longitudinal reversion - Test methods and parameters	M
DIN EN ISO 9852 2018-01	Unplasticized poly(vinyl chloride) (PVC-U) pipes - Dichloromethane resistance at specified temperature (DCMT) - Test method	M
DIN EN ISO 9969 2016-06	Thermoplastics pipes - Determination of ring stiffness	M
DIN EN ISO 13254 2018-01	Thermoplastics piping systems for non-pressure applications - Test method for watertightness	M
DIN EN ISO 13259 2020-10 ISO 13259 2020-07	Thermoplastics piping systems for underground non-pressure applications - Test method for leaktightness of elastomeric sealing ring type joints	M
DIN 8075 2018-08	Polyethylene (PE) pipes - PE 80, PE 100 - General quality requirements, testing	M
DIN 8078 2008-09	Polypropylene (PP) pipes - PP-H, PP-B, PP-R, PP-RCT - General quality requirements and testing	M
DIN 8080 2009-10	Chlorinated polyvinyl chloride (PVC-C) pipes - General quality requirements, testing	M

ISO 7685 2019-07	Glass-reinforced thermosetting plastics (GRP) pipes - Determination of initial ring stiffness	M
ISO 8513 2016-02	Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) pipes - Test methods for the determination of the initial longitudinal tensile strength	M
ISO 8521 2020-07	Glass-reinforced thermosetting plastic (GRP) pipes - Test methods for the determination of the initial circumferential tensile wall strength	M
ISO 10466 2021-04	Glass-reinforced thermosetting plastics (GRP) pipes - Test method to prove the resistance to initial ring deflection	M
DVGW GW 335-A1 2003-06	Plastic piping systems in gas and water distribution; requirements and testing - Part A 1: PVC-U pipes and fittings made therefrom for water distribution; including corr. 2006-06	M
DVGW GW 335-A2 2005-11	Plastic piping systems in gas and water distribution; requirements and testing - Part A2: PE 80 and PE 100 pipes, incl. corr. 2008-02 and supplement 1, 2010-12	M
DVGW GW 335-A5 2015-12	Plastic piping systems in gas- and water distribution; requirements and testing - Part A 5: PE multilayer pipes with reinforcement (PE stretched) and associated fittings and joints	M
DVGW GW 335-A6 2015-12	Plastic piping systems in gas- and water distribution; requirements and testing - Part A 6: PA-U 160 and PA-U 180 pipes and associated fittings and joints *(sub-clauses 3.2-3.4, 3.6-3.7, 3.13-3.17, 3.19-3.21, 3.23, 3.26 only)*	M
DVGW GW 335-B2 2004-09	Plastic piping systems in gas- and water distribution; requirements and testing - Part B2: PE 80 and PE 100 fittings; incl. supplement 1, 2013-02	M
DVGW W 544 2007-05	Plastic pipes in drinking water installations	M

5.4 Testing of Joints between Plastics *

DIN EN 12814-1 1999-12	Testing of welded joints of thermoplastics semi-finished products - Part 1: Bend test	M
DIN EN 12814-2 2021-08	Testing of welded joints of thermoplastics semi-finished products - Part 2: Tensile test	M
DIN EN 12814-4 2018-08	Testing of welded joints of thermoplastics semi-finished products - Part 4: Peel test	M
DVS 2203-2 2010-08	Testing of welded joints between panels and pipes made of thermoplastics - Tensile test	M
DVS 2203-5 1999-08	Testing of welded joints ofthermoplastics plates and tubes - Technological bend test	M
DVS 2203-6 Beiblatt 1 2016-08	Testing of joints between polymeric materials - Torsion shear test, radial peel test and linear shear test for sleeve welding with incorporated electric heating element and heated tool sleeve welded joints	M

Abbreviations used:

ASTM	American Society for Testing and Materials
BS	British Standard
DIN	Deutsches Institut für Normung e.V.
DVGW	Deutscher Verein des Gas- und Wasserfaches
DVS	Deutscher Verband für Schweißen und verwandte Verfahren e. V.
EN	European standard
IEC	International Electrotechnical Cimission
ISO	International Organization for Standardization
LEI-Y000	Procedure of TÜV SÜD Industrie Service GmbH
MUC-XXX-Y000	Procedure of TÜV SÜD Industrie Service GmbH
QMA	Procedure of TÜV SÜD Industrie Service GmbH
SEP	Stahl-Eisen-Prüfblatt
VGB	Vereinigung der Großkesselbesitzer neu VG Power Tech e.V.