

Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-PL-17453-01-00 according to DIN EN ISO/IEC 17025:2005

Period of validity: 03.07.2017 to 02.07.2022

Date of issue: 23.10.2017

Holder of certificate:

SPIE SAG GmbH
Pittlerstraße 44, 63225 Langen

Tests in the fields:

selected tests of the surface and strength at fasteners; mechanical-technological tests and hardness test at metals; element analysis at iron- and aluminium-alloys; wall- and layer thickness;
concrete testing, static and dynamic strength tests at conductor cables, insulators and valves for overhead lines - Measurement of forces, accelerations, strains, temperatures and geometric dimensions

Abbreviations used: see last page

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 methods within the flexible scope of accreditation.

1 Tests on fasteners

DIN EN ISO 6157-2 2004-10	Fasteners - Surface discontinuities - Part 2: Nuts
DIN EN 26157-1 1991-12	Fasteners - surface discontinuities - Part 1: Bolts, screws and studs subject to general requirements
DIN EN 26157-3 1991-12	Fasteners - Surface discontinuities - Bolts, screws and studs subject to special requirements
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 (but: <i>Clauses 9.10-9.13</i>)
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 (<i>Clauses 7 - 9</i>)
DIN EN ISO 3269 2000-11	Fasteners - Acceptance inspection

2 Mechanical tests on metallic materials

DIN EN ISO 6506-1 2015-02	Metallic materials - Brinell hardness test - Part 1: Test method
DIN EN ISO 6507-1 2006-03	Metallic materials - Vickers hardness test - Part 1: Test method
DIN EN ISO 6508-1 2016-12	Metallic materials - Rockwell hardness test - Part 1: Test method (only: <i>Scales B and C</i>)
DIN EN ISO 18265 2014-02	Metallic materials - Conversion of hardness values
DIN EN ISO 6892-1 2017-02	Metallic materials - Conversion of hardness values (<i>Methods A + B</i>)
DIN EN ISO 148-1 2011-01	Metallic materials - Charpy pendulum impact test - Part 1: Test method

3 Elemental analyses on iron and aluminium alloys

PA 10/16-VTZ
2010-07

Element analysis on metals - Emission spectrometric determination with spark excitation of the elements C, Si, Mn, P, S, Al, Cu, Cr, Ni, Mo, Nb, Ti, V, W, Co, Sn, Zn, B, As, Pb, Sb in iron materials, Si, Fe, Cu, Mn, Mg, Zn, Ni, Cr, Pb, Sn, Ti, Ag, B, Be, Bi, Ca, Cd, Na, P, Sr, Li, Zr, Co, V, Ga in aluminium and aluminium alloys - Determination of the nitrogen content in steel by means of hot extrusion

4 Wall and layer thickness measurements

DIN EN ISO 2178
2016-11

Non-magnetic coatings on magnetic substrates - Measurement of coating thickness - Magnetic method

PA 11-VTZ
2012-02

Measurement of wall thickness and sound velocity through ultrasound

DGZfP-US 1
1998-08

Ultrasonic thickness measurement

DIN EN ISO 1461
2009-10

Hot dip galvanized coatings on fabricated iron and steel articles - Specifications and test methods

5 Concrete testing *

DIN EN 14630
2007-01

Products and systems for the protection and repair of concrete structures - Test methods - Determination of carbonation depth in hardened concrete by the phenolphthalein method

6 static and dynamic fatigue tests on, , static and dynamic strength tests at conductor cables, insulators and valves for overhead lines - Measurement of forces, accelerations, strains, temperatures and geometric dimensions*

DIN EN 60652 VDE 0210-15 2004-06	Loading tests on overhead line structures
VDE-AR-N 4210-3 2011-05	Test and evaluation methods for determining the load capacity of structural members made of Thomas steel in steel lattice overhead line towers with nominal voltages of 110 kV and above
DIN EN 61284 1998-05	Overhead lines - Requirements and tests for fittings (Tests in clauses 9, 11, 12, 13 (only: <i>Category A</i>))
DIN EN 61897 1999-08	Overhead lines - Requirements and tests for Stockbridge type aeolian vibration dampers (but: <i>Clause 7.10</i>)
IEEE 664 1993	IEEE Guide on the Laboratory Measurement of the Power Dissipation Characteristics of Aeolian Vibration Dampers for single Conductors
DIN EN 61854 VDE 0212-2 1999-08	Overhead lines - Requirements and tests for spacers (Tests in clause 7.5)
DIN EN 50483-5 VDE 0278-483-5 2009-11	Test requirements for low voltage aerial bundled cable accessories - Part 5: Electrical ageing test
DIN EN 62568 VDE 0212-357 2010-10	Method for fatigue testing of conductors for overhead lines
DIN EN 62567 VDE 0212-356 2014-07	Methods for testing self-damping characteristics of stranded conductors for overhead lines (<i>withdrawn standard</i>)
DIN 45667 1969-10	Classification methods for evaluation of random vibrations

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DIN EN 61395 1998-11	Overhead electrical conductors - Creep test procedures for stranded conductors
CIGRE Recommendation, in: Electra No. 63, p. 103 1979	Recommendations for the evaluation of the lifetime of transmission line conductors
CIGRE Guide CIGRE SC 22 WG 11, TF 2 Draft 1992	Guide to vibration measurements on overhead lines
DIN ISO 2176 1997-05	Petroleum products - Lubricating grease - Determination of dropping point
IEC 60888 1987	Zinc-coated steel wires for stranded conductors (here only: <i>Chapter 10 and 11</i>)
DIN EN 50183 2000-12	Conductors for overhead lines - Aluminium-magnesium-silicon alloy wires
DIN EN 61232 2001-09	Aluminium-clad steel wires for electrical purposes (here only: <i>Chapter 6</i>)
IEC 61232 1993-06	Aluminium-clad steel wires for electrical purposes
DIN EN 50182 2001-12 with Corrigendum 1 2006-08	Conductors for overhead lines - Round wire concentric lay stranded conductors (with the material standards shown in Tab. NA1)
DIN EN 50540 VDE 0212-355 2011-04	Conductors for overhead lines - Aluminium Conductors Steel Supported (ACSS) (here only: <i>Chapter 6</i>)
DIN EN 62219 2003-01	Overhead electrical conductors - Formed wire, concentric lay, stranded conductors
DIN EN 62420 VDE 0212-354 2009-03	Concentric lay stranded overhead electrical conductors containing one or more gap(s)

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DIN EN 10218-1 2012-03	Steel wire and wire products - General - Part 1: Test methods
DIN ISO 7800 2013-09	Metallic Materials - Wire - Simple torsion test
DIN ISO 7801 2008-10	Metallic Materials - Wire - Reverse bend test
DIN ISO 7802 2014-11	Metallic materials - Wire - Wrapping test
PA 20 VTZ 2012-03	Measuring of thermal expansion coefficient of conductors for overhead-lines
PA 21 VTZ 2012-03	Measuring of the transition point of conductors for overhead-lines
DIN EN 50397-2 VDE 0276-397-2 2010-05	Covered conductors for overhead lines and the related accessories for rated voltages above 1 kV AC and not exceeding 36 kV AC - Part 2: Accessories for covered conductors - Tests and acceptance criteria (Tests in clauses: 7.1-7.5, 7.7)
PA 22 VTZ 2012-03	Non-contact temperature measurements through infrared-camera
DIN IEC 60468 1981-03	Method of measurement of resistivity of metallic materials
PA 23 VTZ 2012-03	Measurement of the direct current resistance of conductors for overhead lines
DIN EN 60794-4 VDE 0888-111-1 2004-05	Optical fibre cables - Part 4: Sectional specification - Aerial optical cables along electrical power lines (Tests in clauses 9.2-9.5, 9.10, 9.11, 9.15)
IEEE 1138 2009+ Corr. 1 2014	Standard for testing and performance for Optical Ground Wire (OPGW) for use on electric utility power lines (Tests in clauses 6.4.1, 6.4.2 (without optical characteristics), 6.4.3.1, 6.4.3.2, 6.4.3.5, 6.4.3.6, 6.5 without 6.5.3.2)
PA 10/5-VTZ 1996-02	Measurement of tensile force and torsional moment of conductors for overhead lines

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PA 10/6-VTZ 1997-06	Tests on insulator strings (load transposition)
DIN EN 60168 2001-12	Tests on indoor and outdoor post insulators of ceramic material or glass for systems with nominal voltages greater than 1 kV (Tests in clauses 3.3.4, 5.2, 5.3, 5.7)
DIN EN 60383-1 1997-05 with Amendment 1 2001-08	Insulators for overhead lines with a nominal voltage above 1 kV - Part 1: Ceramic or glass insulator units for a.c. systems - Definitions, test methods and acceptance criteria (Tests in clauses 17-24, 26-28, 29.3, 31.3, 32.2)
DIN EN 62155 2004-03	Hollow pressurized and unpressurized ceramic and glass insulators for use in electrical equipment with rated voltages greater than 1000 V (Tests in clauses 7.2, 7.3, 7.5, 8, 10.5, 10.6)
DIN EN 61109 2009-06	Insulators for overhead lines - Composite suspension and tension insulators for a.c. systems with a nominal voltage greater than 1000 V - Definitions, test methods and acceptance criteria (IEC 61109:2008) (Tests in clauses 10.3, 10.4, 11.2, 12.2, 12.4, 12.5)
IEC 61952 2008-05	Insulators for overhead lines - Composite line post insulators for a.c. systems with a nominal voltage greater than 1000 V (Tests in clauses 10.3, 10.4, 11.2, 12, 13)
DIN EN 61462 2008-06	Composite hollow insulators - Pressurized and unpressurized insulators for use in electrical equipment with rated voltage greater than 1000 V - Definitions, test methods, acceptance criteria and design recommendations (Tests in clause 8 and 9)
DIN EN 62231 VDE 0674-7 2007-07	Composite station post insulators for substations with a.c. voltages greater than 1000 V up to 245 kV - Definitions, test methods and acceptance criteria (Tests in clauses 9.3 and 10)
IEC 62231 2006-04	Composite station post insulators for substations with a.c. voltages greater than 1000 V up to 245 kV - Definitions, test methods and acceptance criteria (Tests in clauses 9.3 and 10)

abbreviations used:

CIGRE	Conférence Internationale des Grands Réseaux Électriques
DAfStb	German Committee on Reinforced Concrete
DGZfP	German Society for Non-Destructive Testing r. a.
DIN	German Institute for Standard
EN	European standard
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronic Engineers
ISO	International Organization for Standardization
PA-VTZ	In-house method of the SPIE SAG GmbH
SIVV	Protecting, repairing, connecting and reinforcing concrete components
VDE	Association of German Ironworks
ZTV	Additional technical terms of contract for civil engineering buildings