Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-PL-20518-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: **26.03.2021**

Date of issue: 14.04.2021

Holder of certificate:

Würth Industrie Service GmbH & Co. KG
Prüflaboratorium
Industriepark Würth, Drillberg, 97980 Bad Mergentheim

Tests in the fields:

mechanical testing on screws and other fasteners

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 Mechanical testing

1.1 Hardness testing on metals

DIN 7500-1 2009-06	Thread rolling screws for ISO metric thread - Part 1: Technical specifications for case hardened and tempered screws Chapter 5.1: Testing the core hardness Chapter 5.2: Testing the surface hardness Chapter 5.3: Testing the case hardening depth

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

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

DIN 7513 2016-12	Thread cutting screws - Hexagon screws and slotted head screws - Dimensions, requirements, testing Chapter 5.1.1: Testing the surface hardness Chapter 5.1.2: Testing the case hardening depth Chapter 5.1.3: Testing the core hardness
DIN 7516 2016-12	Thread cutting screws - Cross recessed head screws - Dimensions, requirements, testing Chapter 5.1.1: Surface hardness test Chapter 5.1.2: Case hardening depth test Chapter 5.1.3: Core hardness test
DIN EN ISO 2639 2003-04	Steels - Determination and verification of the depth of carburized and hardened cases (*HV*)
DIN EN ISO 2702 2011-08	Heat-treated steel tapping screws - Mechanical properties Chapter 6.1.1: Surface hardness test Chapter 6.1.2: Case depth - Microscopic test Chapter 6.1.3: Core hardness test
DIN EN ISO 6506-1 2015-02	Metallic materials - Brinell hardness test - Part 1: Test method (here: *HBW 2,5/187,5; HBW 2,5/31,25; HBW 2,5/15,625*)
DIN EN ISO 6507-1 2018-07	Metallic materials - Brinell vickers test - Part 1: Test method (here: *HV0,3; HV1; HV3; HV5; HV10; HV30*)
DIN EN ISO 6508-1 2016-12	Metallic materials - Rockwell hardness test - Part 1: Test method (here: *HRC; HR15N; HR45N; HR30N*)
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 Chapter 9.9: Hardness test
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 Chapter 9.2: Hardness test
DIN EN ISO 3506-1 2020-08	Fasteners - Mechanical properties of corrosionresistant stainless steel fasteners - Part 1: Bolts, screws and studs with specified grades and property classes Chapter 9.6: Hardness test

DIN EN ISO 3506-2 2020-08	Fasteners - Mechanical properties of corrosionresistant stainless steel fasteners - Part 2: Nuts with specified grades and property classes Chapter 10.2: Hardness test

1.2 Hardness tests on plastics

DIN EN ISO 868 2003-10	Plastics and ebonite - Determination of indentation hardness by means of a durometer (Shore hardness) (here: *Shore A*)
DIN ISO 48 2016-09	Rubber, vulcanized or thermoplastic - Determination of hardness (hardness between 10 IRHD and 100 IRHD) (here: *Method M and CM*)
DIN ISO 7619-1 2012-02	Rubber, vulcanized or thermoplastic - Determination of indentation hardness - Part 1: Durometer method (Shore hardness) (here: *Shore A*)
WIS-Standard* WISTQL-13-450 2018-03	Micro Shore A based on DIN ISO 7619-1

1.3 Strength testing/Tensile testing

DIN 580 2018-04	Lifting eye bolts Chapter 6: Testing
DIN 582 2018-04	Lifting eye nuts Chapter 6: Testing
DIN EN 15048-2 2016-09	Non-preloaded structural bolting assemblies - Part 2: Fitness for purpose Chapter 6: Tensile test for determining the braking strength of fittings for screw connections
DIN EN ISO 6892-1 2020-06	Metallic materials - Tensile testing - Part 1: Method of test at room temperature (here: *only method B*)

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 Chapter 9.1: Tensile test under wedge loading of finished bolts and screws (excluding studs) Chapter 9.2: Tensile test for finished bolts, screws and studs for determination of tensile strength, R_m Chapter 9.4: Tensile test for bolts and screws with reduced loadability due to head design Chapter 9.7: Tensile testing for machined test pieces
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 Chapter 9.1: Proof load test
DIN EN ISO 3506-1 2020-08	Fasteners - Mechanical properties of corrosionresistant stainless steel fasteners - Part 1: Bolts, screws and studs with specified grades and property classes Chapter 9.1: Tensile test for fastener (only R_{mf}) Chapter 9.4: Wedge tensile test
DIN EN ISO 3506-2 2020-08	Fasteners - Mechanical properties of corrosionresistant stainless steel fasteners - Part 2: Nuts with specified grades and property classes Chapter 10.1: Proof load test (without self-locking)

1.4 Torque meter tests and testing the coefficient of friction

DIN 7500-1 2009-06	Thread rolling screws for ISO metric thread - Part 1: Technical specifications for case hardened and tempered screws Chapter 5.6: Screw-in test
DIN 267-27 2009-09	Fasteners - Part 27: Steel screws, bolts and studs with adhesive coating, Technical specifications Chapter 6.2.1: Test with preload (up to 150 Nm and at room temperature) Chapter 6.2.2: Test without preload (up to 150 Nm and at room temperature Chapter 6.3: Testing the thread friction coefficient (from M5)
DIN 267-28 2009-09	Fasteners - Part 27: Steel screws, bolts and studs with adhesive coating, Technical specifications Chapter 6: Test (up to 150 Nm and at room temperature)

DIN 7513 2016-12	Thread cutting screws - Hexagon screws and slotted head screws - Dimensions, requirements, testing Chapter 5.2.1: Screw-in test
DIN 7516 2016-12	Thread cutting screws - Cross recessed head screws - Dimensions, requirements, testing Chapter 5.2.1: Screw-in test
DIN EN ISO 16047 2013-01	Fasteners - Torque/clamp force testing (from M5)
DIN EN 14399-2 2015-04	High-strength structural bolting assemblies for preloading - Part 2: Suitability for preloading Chapter 6: Suitability test (HV and HR trimmings, all K-classes)
VDA 235-203* 2005-08	Test for coefficient of friction, coefficient of friction - Functional- and installation test (M5 to M16)

1.5 Impact test

DIN EN ISO 148-1 2017-05	Metallic materials - Charpy pendulum impact test - Part 1: Test method
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 Chapter 9.14: Impact test for machined test pieces

2 Metallographic analyses

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 Chapter 9.10: Decarburization test Chapter 9.11: Carburization test
WIS-Standard* WISTQL-13-449 2019-09	Microstructural analysis on low alloy steel

* For this standard is not to use an equivalent testing methods (it is not flexible).

Valid from: 26.03.2021
Date of issue: 14.04.2021

3 Corrosion test

DIN EN ISO 9227 2017-07	Corrosion tests in artificial atmospheres - Salt spray tests (NSS)

abbreviations used:

DIN	German Institute for Standardization
EN	European Standard
ISO	International Organization for Standardization
VDA	Association of the Automotive Industry r. a.
WISTQL	Würth Industrie Service - Technical quality assurance laboratory