

Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-PL-18053-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: 26.03.2020

Date of issue: 26.03.2020

Holder of certificate:

**F + K Werkstoffprüfung und Labor GmbH
An der Brille 3, 58300 Wetter**

Tests in the fields:

mechanical-technological tests on metallic materials; metallographical tests; spark emission spectrometry of steel, iron-based alloys and aluminium alloys; roughness measurement; measurement of coating thickness

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.

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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1 Mechanical-technological tests

1.1 Tensile tests *

DIN EN ISO 6892-1
2017-02 Metallic materials - Tensile testing - Part 1: Method of test at room temperature
(here: method *A and B*)

1.2 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 2,5/62,5 - HBW 5/250*)

DIN EN ISO 6507-1
2018-07 Metallic materials - Vickers hardness test - Part 1: Test method
(here: *HV0,2 / HV0,3 / HV0,5 / HV1 / HV3 / HV5 / HV10 / HV30 / HV50 / HV125*)

DIN EN ISO 6508-1
2016-12 Metallic materials - Rockwell hardness test - Part 1: Test method
(here: *Scale C*)

1.3 Impact test *

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

1.4 Bend test *

DIN EN ISO 7438
2016-07 Metallic materials - Bend test

1.5 Roughness measurement *

DIN EN 10049
2014-03 Measurement of roughness average Ra and peak count R_{Pc} on metallic flat products

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1.6 Fasteners *

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 (here: <i>chapter</i> 9 <i>Test methods (Tensile test)</i> 9.2 <i>Tensile test for finished bolts, screws and studs for determination of tensile strength, R_m</i> 9.3 <i>Tensile test for full-size bolts, screws and studs for determination of elongation after fracture, A_f, and stress at 0.0048 d-non-proportional elongation, R_{pf}</i> 9.4 <i>Tensile test for bolts and screws with reduced loadability due to head design</i> 9.5 <i>Tensile test for fasteners with waisted shank</i> 9.6 <i>Proof load test for finished bolts, screws and studs</i> 9.7 <i>Tensile test for machined test pieces</i> 9.9 <i>Hardness test</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 (here: <i>chapter</i> 8.2 <i>Hardness test</i> 9.1 <i>Proof load test</i>)
DIN EN ISO 3506-1 2010-04	Mechanical properties of corrosion-resistant stainless steel fasteners - Part 1: Bolts, screws and studs (here: <i>chapter</i> 7.2 <i>Test methods (Tensile test)</i> 7.2.2 <i>Tensile strength, R_m</i> 7.2.3 <i>Stress at 0,2 % permanent strain $R_{p0,2}$</i> 7.2.4 <i>Elongation after fracture, A</i> 7.2.7 <i>Hardness HB, HRC or HV</i>)
DIN EN ISO 3506-2 2010-04	Mechanical properties of corrosion-resistant stainless steel fasteners - Part 2: Nuts (here: <i>chapter</i> 7.1 <i>Hardness HB, HRC or HV</i> 7.2 <i>Proof load test</i>)

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2 Metallographical tests *

DIN EN ISO 643 2013-05	Steels - Micrographic determination of the apparent grain size
DIN EN ISO 945-1 2019-10	Microstructure of cast irons - Part 1: Graphite classification by visual analysis
DIN EN ISO 2639 2003-04	Steels - Determination and verification of the depth of carburized and hardened cases
ASTM E 112 2013	Standard Test Methods for Determining Average Grain Size
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>

3 Funkenemissionsspektrometrie

AA 2 Rev. 2 2016-10	Optical spark emission spectrometry (OES) for determination of 29 elements in steel, iron-based alloys and aluminium alloys
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4 Schichtdickenmessung *

DIN EN ISO 2178 2016-11	Non-magnetic coatings on magnetic substrates - Measurement of coating thickness - Magnetic method
DIN EN ISO 1463 2004-08	Metallic and oxide coatings - Measurement of coating thickness - Microscopical method

Abbreviations used:

ASTM	American Society for Testing and Materials
DIN	German Institute for Standardization e. V.
EN	European Standard
ISO	International Organization for Standardization
AA	Inhouse test method of F + K Werkstoffprüfung und Labor GmbH

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