

Deutsche Akkreditierungsstelle

Annex to the Accreditation Certificate D-PL-18064-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: 16.09.2022

Date of issue: 16.09.2022

Holder of accreditation certificate:

Buderus Edelstahl GmbH
Mechanisches Prüflabor / Metallographie
Dillfeld 40, 35576 Wetzlar

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.

mechanical tests, metallographic examination as well as determination of magnetic properties of metallic materials

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.

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>.

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1 Mechanical tests

1.1 Tensile testing

DIN EN ISO 6892-1 2020-06	Metallic materials - Tensile testing - Part 1: Method of test at room temperature
DIN EN ISO 6892-2 2018-09	Metallic materials - Tensile testing - Part 2: Method of test at elevated temperature
DIN EN ISO 6892-3 2015-07	Metallic materials - Tensile testing - Part 3: Method of test at low temperature
DIN EN 10002-1 2001-12	Metallic materials - Tensile testing - Part 1: Method of testing at ambient temperature <i>(withdrawn standard)</i>
DIN EN 10002-5 1992-02	Tensile testing of metallic materials; method of testing at elevated temperature <i>(withdrawn standard)</i>
ASTM E 8 / E 8Ma 2021	Standard Test Methods for Tension Testing of Metallic Materials
ASTM E 21 2020	Standard Test Methods for Elevated Temperature Tension Tests of Metallic Materials

1.2 Hardness test

DIN EN ISO 642 2000-01	Steel - Hardenability test by end quenching (Jominy test)
DIN EN ISO 2639 2003-04	Steels - Determination and verification of the depth of carburized and hardened cases
DIN EN ISO 6506-1 2015-02	Metallic materials - Brinell hardness test - Part 1: Test method
DIN EN ISO 6507-1 2018-07	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

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ASTM E 10 2018	Standard Test Method for Brinell Hardness for Metallic Materials
ASTM E 18 2022	Standard Test Method for Rockwell Hardness for Metallic Materials
ASTM E 92 2017	Standard Test Method for Vickers Hardness and Knoop Hardness for Metallic Materials (here: <i>Vickers Hardness</i>)
ASTM A 255a 2020	Standard Test Methods for Determining Hardenability of Steel

1.3 Notch impact testing

DIN EN ISO 148-1 2017-05	Metallic materials - Charpy pendulum impact test - Part 1: Test method
DIN 10045-1 1991-04	Charpy impact test on metallic materials; part 1: test method (<i>withdrawn standard</i>)
ASTM E23 2018	Standard Test Methods for Notched Bar Impact Testing of Metallic Materials
SEP 1670 2010-12	Determination of brittle-ductile transition temperature FATT and other characteristic properties

1.4 Technological sheet testing

DIN EN ISO 7438 2021-03	Metallic materials - bend test
DIN EN ISO 20482 2014-03	Metallic materials - Sheet and strip - Erichsen cupping test

1.5 Technological sheet testing

ASTM E 399a 2020	Standard Test Method for Linear-Elastic Plane-Strain Fracture Toughness K _{IC} of Metallic Materials
ASTM E 1820 2021	Standard Test Method for Measurement of Fracture Toughness

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ISO 12135
2021-07 Metallic materials - Unified method of test for the determination of quasistatic fracture toughness

1.6 Fatigue testing

DIN 50100
2016-12 Load controlled fatigue testing - Execution and evaluation of cyclic tests at constant load amplitudes on metallic specimens and components

2 Metallographic examinations and miscellaneous tests

2.1 Metallographic examinations

ISO 4967
2013-07 Steel - Determination of content of non-metallic inclusions - Micrographic method using standard diagrams

ISO 5949
1983-12 Tool steels and bearing steels - Micrographic method for assessing the distribution of carbides using reference photomicrographs

DIN EN ISO 643
2020-06 Steel - Micrographic determination of the apparent grain size

DIN EN ISO 3887
2018-05 Steels - Determination of depth of decarburization

DIN EN 10247
2017-09 Micrographic examination of the non-metallic inclusion content of steels using standard pictures

DIN 50602
1985-09 Metallographic examination; microscopic examination of special steels using standard diagrams to assess the content of non-metallic inclusions
(withdrawn standard)

ASTM E 45a
2018 Standard Test Methods for Determining the Inclusion Content of Steel

ASTM E 112
2013 Standard Test Methods for Determining Average Grain Size

ASTM E 381
2022 Standard Method of Macroetch Testing Steel Bars, Billets, Blooms, and Forgings

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ASTM A 892 2009	Standard Guide for Defining and Rating the Microstructure of High Carbon Bearing Steels
ASTM E 1077 2014	Standard Test Methods for Estimating the Depth of Decarburization of Steel Specimens
SEP 1520 1998-09	Microscopic examination of carbide structure in steels by means of diagram series
SEP 1571 2017-08	Evaluation of inclusions in special steels based on their surface areas
SEP 1572 2019-03	Microscopic test of free cutting steels for solid nonmetallic inclusions in metal by means of strip mosaics
SEP 1584 1996-12	Blue brittleness test for the testing of steels for macroscopic nonmetallic inclusions
SEP 1614 1996-09	Microscopic inspection of hot-work tool steels
SEP 1615 1975-01	Microscopic and macroscopic testing of high-speed steels for their carbide distribution by means of strip mosaics

2.2 Miscellaneous testing

DIN EN 60404-4 2009-08	Magnetic materials - Part 4: Methods of measurement of d.c. magnetic properties of magnetically soft materials
ASTM A 341/A 341M 2016	Standard Test Method for Direct Current Magnetic Properties of Soft Magnetic Materials Using D-C Permeameters and the Point by Point (Ballistic) Test Methods
ASTM A 773/A 773M 2021	Standard Test Method for Direct Current Magnetic Properties of Low Coercivity Magnetic Materials Using Hysteresisgraphs
SEP 1927 2010-08	Ultrasonic immersion testing method of determining the macroscopic cleanliness rate of rolled or forged steel bars

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Abbreviations used:

ASTM	American Society for Testing and Materials
DIN	German Institute for Standardization
EN	European Standard
ISO	International Organization for Standardization
SEP	Steel and iron test sheet