DAkkS
Deutsche
Akkreditierungsstelle

Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-PL-19424-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: **13.11.2020**

Date of issue: 10.02.2021

Holder of certificate:

Siempelkamp Prüf- und Gutachter-Gesellschaft mbH
Am Lagerplatz 6 a, 01099 Dresden

Tests in the fields:

manual non-destructive tests (ultrasonic-, radiographic-, magnetic particle-, penetrant-, visual testing); strength test of construction units; mechanical-technological and metallographic tests; mobile X-ray fluorescence analysis (positive material-identification PMI)

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.

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

The certificate together with the annex reflects the status as indicated by the date of issue.
The current status of any given scope of accreditation may be found respectively in the database of accredited bodies of Deutsche Akkreditierungsstelle GmbH https://www.dakks.de/en/content/accredited-bodies-dakks.

Abbreviations used: see last page

1 Manual non-destructive tests

1.1 Visual test

DIN EN 13018 2016-06	Non-destructive testing - Visual testing - General principles (here: *chapter 5 and 6*)
DIN EN ISO 17637 2017-04	Non-destructive testing of welds - Visual testing of fusion-welded joints (here: *chapter 6*)
DIN EN 12799 2000-12	Brazing - Non-destructive examination of brazed joints (here: *chapter 4*)

1.2 Ultrasonic test

DIN EN ISO 16810 2014-07	Non-destructive testing - Ultrasonic testing - General principles (here: *chapter 9*)
DIN EN ISO 16823 2014-07	Non-destructive testing - Ultrasonic testing - Transmission technique
DIN EN ISO 17640 2019-02	Non-destructive testing of welds - Ultrasonic testing - Techniques, testing levels, and assessment
DIN EN ISO 22825 2018-02	Non-destructive testing of welds - Ultrasonic testing - Testing of welds in austenitic steels and nickel-based alloys (here: *without Phased-Array-Testing*)
DIN EN 10160 1999-09	Ultrasonic testing of steel flat product of thickness equal to or greater than 6 mm (reflection method)
DIN EN 10228-3 2016-10	Non-destructive testing of steel forgings - Part 3: Ultrasonic testing of ferritic or martensitic steel forgings
DIN EN 10228-4 2016-10	Non-destructive testing of steel forgings - Part 4: Ultrasonic testing of austenitic and austenitic-ferritic stainless steel forgings

DIN EN 12680-1 2003-06	Founding - Ultrasonic examination - Part 1: Steel castings for general purposes
DIN EN 12680-2 2003-06	Founding - Ultrasonic examination - Part 2: Steel castings for highly stressed components
DIN EN 12680-3 2012-02	Founding - Ultrasonic testing - Part 3: Spheroidal graphite cast iron castings
DIN EN 14127 2011-04	Non-destructive testing - Ultrasonic thickness measurement
AD 2000-Data sheet HP 5/3 Annex 1 2015-04	Non-destructive testing of welded joints - Minimum requirements for non-destructive testing methods (here: *Ultrasonic testing)*

1.3 Radiographic test

DIN EN ISO 10893-6 2019-06	Non-destructive testing of steel tubes - Part 6: Radiographic testing of the weld seam of welded steel tubes for the detection of imperfections
DIN EN ISO 17636-1 2013-05	Non-destructive testing of welds - Radiographic testing - Part 1: X- and gamma-ray techniques with film
DIN EN ISO 5579 2014-04	Non-destructive testing - Radiographic testing of metallic materials using film and X- or gamma rays - Basic rules (here: *chapter 6*)
DIN EN 12681-1 2018-02	Founding - Radiographic testing - Part 1: Film techniques
AD 2000-Data sheet HP 5/3 Annex 1 2015-04	Non-destructive testing of welded joints - Minimum requirements for non-destructive testing methods (here: *Radiographic testing)*

1.4 Magnetic particle test

DIN EN ISO 9934-1 2017-03	Non-destructive testing - Magnetic particle testing - Part 1: General principles (here: *chapter 7 to 14*)
DIN EN 1369 2013-01	Founding - Magnetic particle testing
DIN EN 10228-1 2016-10	Non-destructive testing of steel forgings - Part 1: Magnetic particle inspection
DIN EN ISO 17638 2017-03	Non-destructive testing of welds - Magnetic particle testing
DIN EN ISO 10893-5 2011-07	Non-destructive testing of steel tubes - Part 5: Magnetic particle inspection of seamless and welded ferromagnetic steel tubes for the detection of surface imperfections
AD 2000-Data sheet HP 5/3 Annex 1 2015-04	Non-destructive testing of welded joints - Minimum requirements for non-destructive testing methods (here: *Magnetic particle testing)*

1.5 Penetrant test

DIN EN 1371-1 2012-02	Founding - Liquid penetrant testing - Part 1: Sand, gravity die and low pressure die castings
DIN EN 1371-2 2015-04	Founding - Liquid penetrant testing - Part 2: Investment castings
DIN EN 10228-2 2016-10	Non-destructive testing of steel forgings - Part 2: Penetrant testing
DIN EN ISO 10893-4 2011-07	Non-destructive testing of steel tubes - Part 4: Liquid penetrant inspection of seamless and welded steel tubes for the detection of surface imperfections
DIN EN ISO 3452-1 2014-09	Non-destructive testing - Penetrant testing - Part 1: General principles (here: *chapter 8*)

AD 2000- Data sheet HP 5/3 Annex 1 2015-04	Non-destructive testing of welded joints - Minimum requirements for non-destructive testing methods (here: *Penetrant testing)*

2 Resistance test of components

2.1 Resistance test of metallic products

AD 2000-Data sheet HP 30 2016-05	Performance of pressure tests

2.2 Strain gauge measurement

VdTÜV-MB BERE 803 2008-10	Guideline for examination and evaluation of strain gauge measurements - Calculation 803

2.3 Residual stress measurement according to borehole method

ASTM E 837-13a 2013-09	Standard Test Method for Determining Residual Stresses by the Hole-Drilling Strain-Gage Method
Kockelmann-Method Metrological letters HBM 29, Paper 2 1993	Borehole method - An optimal method for experimental determination of residual stresses for different ranges of application - T. Schwarz, H. Kockelmann

3 Mechanical-technological and metallographic tests

3.1 Mechanical-technological tests

3.1.1 Hardness test

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

DIN EN 9015-1 2011-05	Destructive tests on welds in metallic materials - Hardness testing - Part 1: Hardness test on arc welded joints
DIN 50159-1 2015-01	Metallic materials - Hardness testing with the UCI method - Part 1: Test method

3.1.2 Tensile test

DIN EN ISO 4136 2013-02	Destructive tests on welds in metallic materials - Transverse tensile test
DIN EN ISO 6892-1 2017-02	Metallic materials - Tensile testing - Part 1: Method of test at room temperature (here: *test method B*)
DIN EN ISO 6892-2 2018-09	Metallic materials - Tensile testing - Part 2: Method of test at elevated temperature (here: *test method B*)
ASTM E 8/E8M-16a 2016	Standard Test Methods for Tension Testing of Metallic Materials
ASTM E 21-17 2017	Standard Test Methods for Elevated Temperature Tension Tests of Metallic Materials (here: *Standard method for tensile test at increased temperatures*)
ASTM A 370-17a 2017-11	Standard Test Methods and Definitions for Mechanical Testing of Steel Products (here: *tensile test, bend test and hardness test*)

3.1.3 Pressure test

DIN 50106 2016-11	Testing of metallic materials - Compression test at room temperature

3.1.4 Bend test

DIN EN ISO 7438 2016-07	Metallic materials - Bend test
DIN EN ISO 5173 2012-02	Destructive tests on welds in metallic materials - Bend tests
DIN EN ISO 9017 2018-04	Destructive tests on welds in metallic materials - Fracture test

3.1.5 Impact test

DIN EN ISO 148-1 2017-05	Metallic materials - Charpy pendulum impact test - Part 1: Test method
DIN EN ISO 9016 2013-02	Destructive tests on welds in metallic materials - Impact tests - Test specimen location, notch orientation and examination

3.1.6 Stress-rupture test

DIN EN ISO 204 2019-04	Metallic materials - Uniaxial creep testing in tension - Method of test
DIN EN 10319-1 2003-09	Metallic materials - Tensile stress relaxation testing - Part 1: Procedure for testing machines
ASTM E139-11 2011	Standard Test Methods for Conducting Creep, Creep-Rupture and Stress-Rupture Tests of Metallic Materials
ASTM E 292-18 2018	Standard Test Methods for Conducting Time-for-Rupture Notch Tension Tests of Materials
ASTM E 1457-15 2015-06	Standard Test Methods for Measurement of Creep Crack Growth Times and Rates in Metals

3.1.7 Fatigue strength test

DIN 50100 2016-12	Load controlled fatigue testing - Execution and evaluation of cyclic tests at constant load amplitudes on metallic specimens and components
ASTM E 606/E606M-12 2012-06	Standard Test Method for Strain-Controlled Fatigue Testing

3.2 Metallographic test

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 1463 2004-08	Metallic and oxide coatings - Measurement of coating thickness - Microscopical method
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
DIN EN ISO 17639 2013-12	Destructive tests on welds in metallic materials - Macroscopic and microscopic examination of welds
ASTM G 48-11 2015	Standard Test Methods for Pitting and Crevice Corrosion Resistance of Stainless Steels and Related Alloys by Use of Ferric Chloride Solution (here: *Method A and E)*
ASTM E 562-19 2019-09	Standard Test Method for Determining Volume Fraction by Systematic Manual Point Count
VGB-S-517-00 2014-11	Set of rules for evaluation of structural composition and creep damage in heat-resisting steels for high-pressure pipelines and boiler construc-tion components
VdTÜV-MB DAMP 451-83/6 1983-08	Structural face examination of creep stressed components according to TRD 508

4 X-ray fluorescence analysis

SPG-AA ILP-040 2018-09	Mobile X-ray fluorescence analysis (positive material-identification PMI)

Abbreviations used:

AD	Working Group Pressure Vessel
ASTM	American Society for Testing and Materials
DIN	German Institute for Standardization
EN	European Standard
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
MB	Data sheet
SPG-AA	In house method of the Siempelkamp Prüf- und Gutachter-Gesellschaft mbH
TRD	Technical rules for steam boilers
VdTÜV	Association of Technical Inspection Societies r. a.
VGB	VGB PowerTech e. V. (=European technical association for power and heat generation of all types)