

## Deutsche Akkreditierungsstelle GmbH

### Annex to the Accreditation Certificate D-PL-17234-01-00 according to DIN EN ISO/IEC 17025:2005

Period of validity: 13.10.2014 to 12.10.2019

Date of issue: 12.03.2015

Holder of certificate:

**PLR Prüftechnik Linke & Rühle GmbH**  
**Altenhäuser Straße 6, 39126 Magdeburg**

Tests in the fields:

**manual non-destructive testings (radiographic-, ultrasonic-, penetration-, magnetic particle-, visual-, eddy current testing) and mechanized non-destructive testing (ultrasonic- and eddy current testing) at metallic materials of the metal production and metal-working industry as well as of plant engineering and plant construction;**  
**testing of properties of eddy current- and ultrasonic flaw detection devices as well as portable mobile and stationary magnetization devices of the non-destructive material testing**

Abbreviations used: see last page

**The testing laboratory is permitted, within the scope of accreditation marked with \*, without being required to inform and obtain prior approval from DAkkS, the following the free choice of standard or equivalent testing methods. The listed testing methods are exemplary. The testing laboratory maintains a current list of all testing methods within the flexible scope of accreditation.**

**The testing laboratory is permitted, within the scope of accreditation marked with \*\*, without being required to inform and obtain prior approval from DAkkS, to use standard testing methods listed here with different issue dates.**

## 1 Non-destructive testing

### 1.1 Radiographic testing \*

Testing of metallic materials and material connections with respect to the existence of defects, their density distributions and their frequency as well as the identification of the nature of the defects by means of X-ray testings up to 300 keV and by the application of the radioactive isotopes Se75 and Ir192 in the range from 5 mm up to 100 mm irradiated thickness.

DIN EN ISO 5579 2014-04	Non-destructive testing - Radiographic testing of metallic materials using film and X- or gamma rays - Basic rules
DIN EN 12681 2003-06	Founding - Radiographic examination
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 17636-2 2013-05	Non-destructive testing of welds - Radiographic testing - Part 2: X- and gamma-ray techniques with digital detectors

### 1.2 Ultrasonic testing \*

Manual and mechanized surface and volume testing with respect to defects in components of plant constructions, mechanical engineering, traffic engineering as well as in products and construction components of the metal producing and metal processing industry for the material thickness from 2 mm up to 700 mm and the temperature range from -20°C up to 200°C.

DIN EN ISO 16810 2014-07	Non-destructive testing - Ultrasonic testing - General principles
DIN EN ISO 16823 2014-07	Non-destructive testing - Ultrasonic testing - Transmission technique
DIN EN ISO 16826 2014-06	Non-destructive testing - Ultrasonic testing - Examination for discontinuities perpendicular to the surface
DIN EN ISO 16827 2014-06	Non-destructive testing - Ultrasonic testing - Characterization and sizing of discontinuities
DIN EN 17640 2011-04	Non-destructive testing of welds - Ultrasonic testing - Techniques, testing levels, and assessment

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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 1998-07	Non-destructive testing of steel forgings - Part 3: Ultrasonic testing of ferritic or martensitic steel forgings
DIN EN 10228-4 1999-10	Non-destructive testing of steel forgings - Part 4: Ultrasonic testing of austenitic and austenitic-ferritic stainless steel forgings
DIN EN ISO 10893-8 2011-07	Non-destructive testing of steel tubes - Part 8: Automated ultrasonic testing of seamless and welded steel tubes for the detection of laminar imperfections
DIN EN 10306 2002-03	Iron and steel - Ultrasonic testing of H beams with parallel flanges and IPE beams
DIN EN 10307 2002-03	Non-destructive testing - Ultrasonic testing of austenitic and austenitic-ferritic stainless steels flat products of thickness equal to or greater than 6 mm (reflection method)
DIN EN 10308 2002-03	Non-destructive testing - Ultrasonic testing of steel bars
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
DIN EN ISO 22825 2012-08	Non-destructive testing of welds - Ultrasonic testing - Testing of welds in austenitic steels and nickel-based alloys
DIN ISO 4386-1 1992-11	Plain bearings - metallic multilayer plain bearings - non-destructive ultrasonic testing of bond
DIN 22261-3 2006-11	Excavators, spreaders and auxiliary equipment in opencast lignite mines - Part 3: Welded connections, joint types, classification, test instruction

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SEL 072 and Supplement 1977-12	Ultrasonically tested heavy plate; technical delivery specifications <i>(withdrawn document)</i>
SEP 1915 1994-09	Ultrasonic test of steel pipes for aberration <i>(withdrawn document)</i>
SEP 1918 1992-01	Ultrasonic test of steel pipes for transverse defects <i>(withdrawn document)</i>
SEP 1919 1977-06	Ultrasonic testing for laminations of pipes of creep-resistant steels <i>(withdrawn document)</i>
SEP 1920 1984-12	Ultrasonic testing of rolled semi-finished products on internal material discontinuities
SEP 1922 1985-07	Ultrasonic testing of forgings of ferritic steel <i>(zurückgezogenes Dokument)</i>
SEP 1923 1990-12	Ultrasonic testing of forgings of steel higher requirements, especially for construction components of turbines and for generator constructions
SEP 1924 1989-10	Ultrasonic testing of castings made of cast iron with spheroidal graphite <i>(withdrawn document)</i>
RIL 821.2007Z62 2007-11	Guideline for ultrasonic testing with rail testing trains

**1.3 Magnetic particle testing \***

Manual testing with respect to defects in the range close to the surface of components of plant constructions, mechanical engineering, traffic engineering as well as in products and construction components of the metal producing and metal processing industry made from ferromagnetic material in the temperature range from -20°C up to 200°C.

DIN EN ISO 9934-1 2002-03	Non-destructive testing - Magnetic particle testing - Part 1: General principles
DIN EN ISO 17638 2010-03	Non-destructive testing of welds - Magnetic particle testing

DIN EN 1369  
2013-01 Founding - Magnetic particle testing

DIN EN 10228-1  
1999-07 Non-destructive testing of steel forgings - Part 1: Magnetic particle inspection

#### **1.4 Liquid Penetrant testing \***

Manual testing with respect to defects in the range close to the surface of components of plant constructions, mechanical engineering, traffic engineering as well as in products and construction components of the metal producing and metal processing industry made from metals, ceramics and plastics in the temperature range from 0°C up to 80°C.

DIN EN ISO 3452-1  
2014-09 Non-destructive testing - Penetrant testing - Part 1: General principles

DIN EN 1371-1  
2012-02 Founding - Liquid penetrant testing - Part 1: Sand, gravity die and low pressure die castings

DIN EN 1371-2  
1998-07 Founding - Liquid penetrant inspection - Part 2: Investment castings

DIN EN 10228-2  
1998-06 Non-destructive testing of steel forgings - Part 2: Penetrant testing

#### **1.5 Eddy current testing \***

Manual and mechanized testing with respect to defects on the surface or in the range close to the surface of components of plant constructions, mechanical engineering, traffic engineering as well as in products and construction components of the metal producing and metal processing industry in the temperature range from -15°C up to 200°C. Characterization of material properties and determination of the layer thickness of metallic and metal fibre enhanced materials in the temperature range from -5°C up to 100°C.

DIN EN ISO 2178  
1995-04 Non-magnetic coatings on magnetic substrates - Measurement of coating thickness - Magnetic method

DIN EN ISO 2360  
2004-04 Non-conductive coatings on non-magnetic electrically conductive basis materials - Measurement of coating thickness - Amplitude-sensitive eddy current method

DIN EN 1711  
2000-03 Non-destructive examination of welds - Eddy current examination of welds by complex plane analysis

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DIN EN 10893-1 2011-07	Non-destructive testing of steel tubes - Part 1: Automated electromagnetic testing of seamless and welded (except submerged arc-welded) steel tubes for the verification of hydraulic leaktightness
DIN EN 10893-2 2011-07	Non-destructive testing of steel tubes - Part 2: Automated eddy current testing of seamless and welded (except submerged arc-welded) steel tubes for the detection of imperfections
DIN EN ISO 15549 2011-03	Non-destructive testing - Eddy current testing - General principles
DIN 54141-3 1987-02	Non-destructive testing - eddy current testing of pipes and tubes - procedure
RIL 821.2007Z31 2007-04	Guideline for Eddy current testing of rails and switching railroads with the WPG
RIL 821.2007Z63 2008-03	Guideline for Eddy current testing of rail testing trains

**1.6 Visual testing \***

Testing of external and internal surfaces with respect to irregularities and to non-permissible findings on components of plant constructions, mechanical engineering and traffic engineering made of metals, ceramics, plastics, concrete, stone, wood, carbon fibre enhanced materials and composite materials in the temperature range from -20°C up to 60°C.

DIN EN ISO 17637 2011-05	Non-destructive testing of welds - Visual testing of fusion-welded joints
DIN EN 1370 2012-03	Founding - Examination of surface condition
DIN EN 13018 2001-07	Non-destructive testing - Visual testing - General principles

## 2 Cross-procedure standards \*\*

(here only for: *radiographic-, ultrasonic-, magnetic particle-, penetration-, Eddy current- and visual testing*)

DIN EN 13445-5 2013-12	Unfired pressure vessels - Part 5: Inspection and testing
DIN EN 13480-5 2013-11	Metallic industrial piping - Part 5: Inspection and testing (here: <i>Non-destructive testing</i> )
AD HP 5/3 2011-05	Manufacture and testing of joints - Non-destructive testing of welded joints
DVGW GW 350 2006-10	Welding joints for steel pipework in gas and water supply - Production, testing and assessment
DIN 27201-7 2014-05	State of railway vehicles - Basic principles and production technology - Part 7: Non-destructive testing

### Further applicable documents:

ISO 17635 2010-03	Non-destructive testing of welds - General rules for metallic materials
DIN EN ISO 17635 2010-08	Non-destructive testing of welds - General rules for metallic materials

## 3 Testing of equipment for non-destructive testings \*

DIN EN ISO 9934-3 2002-10	Non-destructive testing - Magnetic particle testing - Part 3: Equipment
DIN EN 12668-1 2010-05	Non-destructive testing - Characterization and verification of ultrasonic examination equipment - Part 1: Instruments
DIN EN ISO 15548-1 2014-03	Non-destructive testing - Equipment for eddy current examination - Part 1: Instrument characteristics and verification
DIN EN 15317 2014-02	Non-destructive testing - Ultrasonic testing - Characterization and verification of ultrasonic thickness measuring equipment

**Abbreviations used:**

AD-HP	Working group of pressure vessels - Production and testing
DVGW	German association of gas- and water industry
RIL	Guideline of the Deutsche Bahn AG
SEL	Steel-iron-delivery conditions of the Association of German Steel
SEP	Steel and iron test sheet of the Association of German Steel Institute
WPG	Eddy current testing device for rails