

Deutsche Akkreditierungsstelle

Annex to the Accreditation Certificate D-ZE-20531-01-00 according to DIN EN ISO/IEC 17065:2013

Valid from: 05.09.2023

Date of issue: 05.09.2023

Holder of accreditation certificate:

**TÜV Rheinland Rail Certification B.V.
Am Grauen Stein, 51105 Köln**

The certification body meets the requirements of DIN EN ISO/IEC 17065:2013 to carry out the conformity assessment activities listed in this annex. The certification body meets additional legal and normative requirements, if applicable, including those in relevant sectoral schemes, provided that these are explicitly confirmed below.

The management system requirements of DIN EN ISO/IEC 17065 are written in the language relevant to the operations of certification bodies and confirm generally with the principles of DIN EN ISO 9001.

Certifications of products, processes and services in the fields:

Railway Vehicles, Railway Infrastructure (selected areas), Railway Energy Systems, On-board and Trackside Control-Command and Signalling on a normative basis; Functional Safety of Objects, Components, Devices, Systems and Applications, including Management of Functional Safety for Railway Applications

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>.

Abbreviations used: see last page

Page 1 of 8

This document is a translation. The definitive version is the original German annex to the accreditation certificate.

Annex to the Accreditation Certificate D-ZE-20531-01-00

For standards that include test methods in addition to the requirements for the object of certification, the scope of accreditation refers exclusively to the specifications and requirements for the object of certification.

1. Railway Vehicles, Railway Infrastructure (selected areas), Railway Energy Systems, Track-side and On-board Control-Command and Signalling on a normative basis

Certification according to:

4.3-M05.D103 V2 TÜV Rheinland M.05 Independent Assessment Scheme-
2022-11 CERTIFICATION

on the basis of requirements for subsystems and components of the assessment and specification documentation listed below:

1.1 Railway Vehicles

1.1.1 General Requirements

EN 14033-1 2017-05	Railway applications - Track - Rail bound construction and maintenance machines - Part 1: Technical requirements for running
EN 14033-2 2017-05	Railway applications - Track - Rail bound construction and maintenance machines - Part 2: Technical requirements for travelling and working
EN 14033-3 2017-05	Railway applications - Track - Rail bound construction and maintenance machines - Part 3: General safety requirements
EN 14033-4 2019-01	Railway applications - Track - Railbound construction and maintenance machines - Part 4: Technical requirements for running, travelling and working on urban rail
EN 50126-1 2017-10	Railway Applications - The Specification and Demonstration of Reliability, Availability, Maintainability and Safety (RAMS) - Part 1: Generic RAMS Process
EN 50126-2 2017-10	Railway Applications - The Specification and Demonstration of Reliability, Availability, Maintainability and Safety (RAMS) - Part 2: Systems Approach to Safety

Valid from: 05.09.2023

Date of issue: 05.09.2023

Page 2 of 8

This document is a translation. The definitive version is the original German annex to the accreditation certificate.

Annex to the Accreditation Certificate D-ZE-20531-01-00

BOStrab
2019-10 Regulation on the construction and operation of light rail transit systems (Tramway construction and operation regulations – BOStrab)

1.1.2 Electrical Systems

EN 50121-1
2017-01 Railway applications - Electromagnetic compatibility - Part 1: General

EN 50121-2
2017-01 Railway applications - Electromagnetic compatibility - Part 2: Emission of the whole railway system to the outside world

EN 50121-3-1
2017-01 + A1 2019 Railway applications - Electromagnetic compatibility - Part 3-1: Rolling stock - Train and complete vehicle

EN 50121-3-2
2016-12 + A1 2019 Railway applications - Electromagnetic compatibility - Part 3-2: Rolling stock - Apparatus

EN 50155
2021-07 Railway applications - Rolling stock - Electronic equipment

IEC 60571
2012-09 Railway applications - Electronic equipment used on rolling stock

EN 50159
2010-09 + A1 2020
IEC 62280
2014-02 Railway applications - Communication, signalling and processing systems - Safety-related communication in transmission systems

1.1.3 Strength and Structural Mechanics

EN 13260
2020-09 Railway applications - Wheelsets and bogies - Wheelsets - Product requirements

EN 13261
2020-09 Railway applications - Wheelsets and bogies - Axles - Product requirements

EN 13262
2020-09 Railway applications - Wheelsets and bogies - Wheels - Product requirements

1.1.4 Functional Safety, Vehicle Control Technology

EN 50128
2011-06 + A1 2020 +
A2 2020 + AC 2014
IEC 62279
2015-06 Railway applications - Communication, signalling and processing systems - Software for railway control and protection systems

Valid from: 05.09.2023

Date of issue: 05.09.2023

Annex to the Accreditation Certificate D-ZE-20531-01-00

EN 50657 Railways Applications - Rolling stock applications - Software on Board
2017-08 Rolling Stock

1.5 Fire Protection, Evacuation

EN 45545-1 Railway applications - Fire protection on railway vehicles - Part 1:
2013-03 General

EN 45545-2 Railway applications - Fire protection on railway vehicles - Part 2:
2020-08 Requirements for fire behavior of materials and components

EN 45545-3 Railway applications - Fire protection on railway vehicles - Part 3: Fire
2013-03 resistance requirements for fire barriers

EN 45545-3 Railway applications - Fire protection on railway vehicles - Part 3: Fire
2021-12 resistance requirements for fire barriers

EN 45545-4 Railway applications - Fire protection on railway vehicles - Part 4: Fire
2013-03 safety requirements for rolling stock design

EN 45545-4 Railway applications - Fire protection on railway vehicles - Part 4: Fire
2022-02 safety requirements for rolling stock design

EN 45545-5 Railway applications - Fire protection on railway vehicles - Part 5: Fire
2013-03 + safety requirements for electrical equipment including that of trolley
A1 2015 buses, track guided buses and magnetic levitation vehicles

EN 45545-6 Railway applications - Fire protection on railway vehicles - Part 6: Fire
2013-03 control and management systems

EN 45545-6 Railway applications - Fire protection on railway vehicles - Part 6: Fire
2022-06 control and management systems

EN 45545-7 Railway applications - Fire protection on railway vehicles - Part 7: Fire
2013-03 safety requirements for flammable liquid and flammable gas
installations

Annex to the Accreditation Certificate D-ZE-20531-01-00

1.2 Railway Infrastructure

1.2.1 General Requirements

BOStrab 2019-10	Regulation on the construction and operation of light rail transit systems (Tramway construction and operation regulations – BOStrab)
EN 50126-1 2017-10	Railway Applications - The Specification and Demonstration of Reliability, Availability, Maintainability and Safety (RAMS) - Part 1: Generic RAMS Process
EN 50126-2 2017-10	Railway Applications - The Specification and Demonstration of Reliability, Availability, Maintainability and Safety (RAMS) - Part 2: Systems Approach to Safety

1.2.2 Ballastless Track

EN 16432-1 2017-07	Railway applications - Ballastless track systems - Part 1: General requirements
EN 16432-2 2017-08	Railway applications - Ballastless track systems - Part 2: System design, subsystems and components

1.3 Railway Energy Systems

1.3.1 General Requirements

BOStrab 2019-10	Regulation on the construction and operation of light rail transit systems (Tramway construction and operation regulations – BOStrab)
EN 50126-1 2017-10	Railway Applications - The Specification and Demonstration of Reliability, Availability, Maintainability and Safety (RAMS) - Part 1: Generic RAMS Process
EN 50126-2 2017-10	Railway Applications - The Specification and Demonstration of Reliability, Availability, Maintainability and Safety (RAMS) - Part 2: Systems Approach to Safety

1.3.2 Power and Switching Stations for Railway Power Supply

EN 50121-1 2017-01	Railway applications - Electromagnetic compatibility - Part 1: General
EN 50121-2 2017-01	Railway applications - Electromagnetic compatibility - Part 2: Emission of the whole railway system to the outside world

Valid from: 05.09.2023

Date of issue: 05.09.2023

Annex to the Accreditation Certificate D-ZE-20531-01-00

EN 50121-4 2016-12 + A1 2019	Railway applications - Electromagnetic compatibility - Part 4: Emission and immunity of the signalling and telecommunications apparatus
EN 50121-5 2017-03 + A1 2019	Railway applications - Electromagnetic compatibility - Part 5: Emission and immunity of fixed power supply installations and apparatus
EN 50122-1 2011-01 + A1 2011 + A2 2016 + A3 2016 + A4 2017 + AC 2012 + FprEN 50122-1 2022-04	Railway applications - Fixed installations - Electrical safety, earthing and the return circuit - Part 1: Protective provisions against electric shock
EN 50122-2 2010-10 + FprEN 50122-2 2022-04	Railway applications - Fixed installations - Electrical safety, earthing and the return circuit - Part 2: Provisions against the effects of stray currents caused by d.c. traction systems
EN 50122-3 2010-10 + FprEN 50122-3 2022-04	Railway applications - Fixed installations - Electrical safety, earthing and the return circuit - Part 3: Mutual Interaction of a.c. and d.c. traction systems

1.4 On-board and Trackside Control-Command and Signalling

- **On-board and Trackside Equipment Class A systems**
- **On-board and Trackside Equipment Class B systems and comparable ATP Systems in the Light Rail Sector**
- **On-board and Trackside GSM-R Systems / Radio Equipment**
- **Remote Control Technology**
- **Interlocking Technology Indoor and Outdoor Installations**
- **Level Crossing Protection Technology**
- **Interface and Interaction with On-board or Trackside CCS**

EN 50126-1 1999-09 + AC 2010 IEC 62278 2002-09	Railway applications - The specification and demonstration of Reliability, Availability, Maintainability and Safety (RAMS) - Part 1: Generic RAMS Process
---	---

EN 50126-1 2017-10	Railway Applications - The Specification and Demonstration of Reliability, Availability, Maintainability and Safety (RAMS) - Part 1: Generic RAMS Process
-----------------------	---

Valid from: 05.09.2023

Date of issue: 05.09.2023

Annex to the Accreditation Certificate D-ZE-20531-01-00

EN 50126-2 2017-10	Railway Applications - The Specification and Demonstration of Reliability, Availability, Maintainability and Safety (RAMS) - Part 2: Systems Approach to Safety
EN 50128 2011-06 + AC 2014 + A1 2020 + A2 2020 IEC 62279 2015-06	Railway applications - Communication, signalling and processing systems - Software for railway control and protection systems
EN 50129 2003-02 + AC 2010 IEC 62425 2007-09	Railway applications - Communication, signalling and processing systems - Safety related electronic systems for signalling
EN 50129 2018-11 + AC 2019	Railway applications - Communication, signalling and processing systems - Safety related electronic systems for signalling
EN 50159 2010-09 + A1 2020 IEC 62280 2014-02	Railway applications - Communication, signalling and processing systems - Safety-related communication in transmission systems
IEC 62267 2009-12	Railway applications - Automated urban guided transport (AUGT) - Safety requirements
BOStrab 2019-10	Regulation on the construction and operation of light rail transit systems (Tramway construction and operation regulations – BOStrab)

Valid from: 05.09.2023

Date of issue: 05.09.2023

Page 7 of 8

This document is a translation. The definitive version is the original German annex to the accreditation certificate.

Annex to the Accreditation Certificate D-ZE-20531-01-00

2. Functional Safety according to the following Certification Programmes for Objects, Components, Devices, Systems and Applications, including Management of Functional Safety for Railway Applications

Certification according to:

4.3-M05.D103 V2 TÜV Rheinland M.05 Independent Assessment Scheme-CERTIFICATION
2022-11

on the basis of requirements for subsystems and components of the assessment and specification documentation listed below:

EN 61508-1 2010-05 IEC 61508-1 2010-04	Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 1: General requirements
EN 61508-2 2010-05 IEC 61508-2 2010-04	Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 2: Requirements for electrical/electronic/programmable electronic safety-related systems
EN 61508-3 2010-05 IEC 61508-3 2010-04	Functional safety of electrical/ electronic/programmable electronic safety-related systems - Part 3: Software requirements

Abbreviations used:

4.3-M###.D###	Certification procedure of TÜV Rheinland Group
ATP	Automatic Train Protection
BOStrab	Straßenbahn-Bau- und Betriebsordnung
DIN	Deutsches Institut für Normung e.V.
EN	European Standard
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
RAMS	Reliability, Availability, Maintainability, Safety

Valid from: 05.09.2023

Date of issue: 05.09.2023

Page 8 of 8

This document is a translation. The definitive version is the original German annex to the accreditation certificate.