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Railway applications - Welding of railway vehicles and
components - Part 4: Production requirements

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 15085-4:2023 sisaldab Euroopa standardi EN 15085-4:2023 ingliskeelset teksti.	This Estonian standard EVS-EN 15085-4:2023 consists of the English text of the European standard EN 15085-4:2023.
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English Version

Railway applications - Welding of railway vehicles and components - Part 4: Production requirements

Applications ferroviaires - Soudage des véhicules et des composants ferroviaires - Partie 4: Exigences de production

Bahnanwendungen - Schweißen von Schienenfahrzeugen und -fahrzeugteilen - Teil 4: Fertigungsanforderungen

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European foreword

This document (EN 15085-4:2023) has been prepared by Technical Committee CEN/TC 256 “Railway applications”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2023, and conflicting national standards shall be withdrawn at the latest by September 2023.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 15085-4:2007.

This series of European Standards EN 15085 “Railway applications – Welding of railway vehicles and components” consists of the following parts:

- Part 1: General;
- Part 2: Requirements for welding manufacturers;
- Part 3: Design requirements;
- Part 4: Production requirements;
- Part 5: Inspection, testing and documentation;
- Part 6: Maintenance welding requirements.

EN 15085-4:2023 includes the following changes with respect to EN 15085-4:2007:

- a) Normative reference have been updated;
- b) Clause 4, Preparation before welding has been revised;
- c) Clause 5, Requirements for welding has been revised;
- d) Clause 6, Special requirements for maintenance welding of railway vehicles has been deleted
- e) Annex A, Guidance on the choice of filler material has been added
- f) Annex ZA has been added.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For relationship with EU Directive(s) / Regulation(s), see informative Annex ZA, which is an integral part of this document.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

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Introduction

Welding is a special process in the manufacture of railway vehicles and their parts. The required provisions for this process are defined in the standards series EN ISO 3834. The basis of these provisions is the basic technical welding standards with respect to the special requirements for the construction of railway vehicles.

This series of standards applies to welding of metallic materials in the manufacture and maintenance of railway vehicles and their parts.

It describes the control for the welding process for railway vehicles and their components for new manufacture and maintenance.

With respect to the railway environment, this series of standards defines the quality requirements for the welding manufacturer to undertake new building and repair work.

Components, parts and subassemblies are assigned a classification level, based on their safety relevance. According to these levels, qualifications for welding personnel of the manufacturer are specified.

This series provides an essential link between the weld performance class defined during design, the quality of the weld, and the demonstration of the required quality by inspection.

This series of standards does not deal with product qualification.

NOTE This series of standards can also be used by internal and external parties, including certification bodies, to assess the organization's ability to meet customer, regulatory and the organization's own requirements.

1 Scope

This document specifies the production requirements (i.e. preparation and execution) of the welding work on railway vehicles and components.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1011-1:2009, *Welding - Recommendations for welding of metallic materials - Part 1: General guidance for arc welding*

EN 1011-2:2001, *Welding - Recommendations for welding of metallic materials - Part 2: Arc welding of ferritic steels*

EN 1011-3:2018, *Welding - Recommendations for welding of metallic materials - Part 3: Arc welding of stainless steels*

EN 1011-4:2000, *Welding - Recommendations for welding of metallic materials - Part 4: Arc welding of aluminium and aluminium alloys*

EN 1011-5:2003, *Welding - Recommendations for welding of metallic materials - Part 5: Welding of clad steel*

EN 1011-6:2018, *Welding - Recommendation for welding of metallic materials - Part 6: Laser beam welding*

EN 1011-7:2004, *Welding - Recommendations for welding of metallic materials - Part 7: Electron beam welding*

EN 1011-8:2018, *Welding - Recommendations for welding of metallic materials - Part 8: Welding of cast irons*

EN 287-6:2018, *Qualification test of welders - Fusion welding - Part 6: Cast irons*

EN 10204:2004, *Metallic products - Types of inspection documents*

EN 14532-1:2004, *Welding consumables - Test methods and quality requirements - Part 1: Primary methods and conformity assessment of consumables for steel, nickel and nickel alloys*

EN 14532-2:2004, *Welding consumables - Test methods and quality requirements - Part 2: Supplementary methods and conformity assessment of consumables for steel, nickel and nickel alloys*

EN 15085-1:—¹, *Railway applications — Welding of railway vehicles and components — Part 1: General*

EN 15085-3:2022, *Railway applications - Welding of railway vehicles and components - Part 3: Design requirements*

¹ Under preparation. Stage at time of publication: prEN 15085-1:2021.

EN 15085-5:2023, *Railway applications - Welding of railway vehicles and components - Part 5: Inspection, testing and documentation*

EN 10025-1:2004, *Hot rolled products of structural steels - Part 1: General technical delivery conditions*

EN 10340:2007, *Steel castings for structural uses*

EN ISO 544:2017, *Welding consumables - Technical delivery conditions for filler materials and fluxes - Type of product, dimensions, tolerances and markings (ISO 544:2017)*

EN ISO 4063:2010, *Welding and allied processes - Nomenclature of processes and reference numbers (ISO 4063:2009, Corrected version 2010-03-01)*

EN ISO 9606-1:2017, *Qualification testing of welders - Fusion welding - Part 1: Steels (ISO 9606-1:2012 including Cor 1:2012 and Cor 2:2013)*

EN ISO 9606-2:2004, *Qualification test of welders - Fusion welding - Part 2: Aluminium and aluminium alloys (ISO 9606-2:2004)*

EN ISO 9606-3:1999, *Approval testing of welders - Fusion welding - Part 3: Copper and copper alloys (ISO 9606-3:1999)*

EN ISO 9606-4:1999, *Approval testing of welders - Fusion welding - Part 4: Nickel and nickel alloys (ISO 9606-4:1999)*

EN ISO 9606-5:2000, *Approval testing of welders - Fusion welding - Part 5: Titanium and titanium alloys, zirconium and zirconium alloys (ISO 9606-5:2000)*

EN ISO 14555:2017, *Welding - Arc stud welding of metallic materials (ISO 14555:2017)*

EN ISO 14732:2013, *Welding personnel - Qualification testing of welding operators and weld setters for mechanized and automatic welding of metallic materials (ISO 14732:2013)*

EN ISO 15609-1:2019, *Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 1: Arc welding (ISO 15609-1:2019)*

EN ISO 15609-2:2019, *Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 2: Gas welding (ISO 15609-2:2019)*

EN ISO 15609-3:2004, *Specification and qualification of welding procedures for metallic materials - Welding procedures specification - Part 3: Electron beam welding (ISO 15609-3:2004)*

EN ISO 15609-4:2009, *Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 4: Laser beam welding (ISO 15609-4:2009)*

EN ISO 15609-5:2011, *Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 5: Resistance welding (ISO 15609-5:2011, Corrected version 2011-12-01)*

EN ISO 15609-6:2013, *Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 6: Laser-arc hybrid welding (ISO 15609-6:2013)*

EN ISO 15613:2004, *Specification and qualification of welding procedures for metallic materials - Qualification based on pre-production welding test (ISO 15613:2004)*

EN ISO 15614-1:2017, *Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys (ISO 15614-1:2017, Corrected version 2017-10-01)*

EN ISO 15614-2:2005, *Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 2: Arc welding of aluminium and its alloys (ISO 15614-2:2005)*

EN ISO 15614-3:2008, *Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 3: Fusion welding of non-alloyed and low-alloyed cast irons (ISO 15614-3:2008)*

EN ISO 15614-4:2005, *Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 4: Finishing welding of aluminium castings (ISO 15614-4:2005)*

EN ISO 15614-7:2019, *Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 7: Overlay welding (ISO 15614-7:2016)*

EN ISO 15614-11:2002, *Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 11: Electron and laser beam welding (ISO 15614-11:2002)*

EN ISO 15614-12:2021, *Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 12: Spot, seam and projection welding (ISO 15614-12:2021)*

EN ISO 15614-13:2021, *Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 13: Upset (resistance butt) and flash welding (ISO 15614-13:2021)*

EN ISO 15620:2019, *Welding - Friction welding of metallic materials (ISO 15620:2019)*

EN ISO 17652-1:2003, *Welding - Test for shop primers in relation to welding and allied processes - Part 1: General requirements (ISO 17652-1:2003)*

EN ISO 17652-2:2003, *Welding - Test for shop primers in relation to welding and allied processes - Part 2: Welding properties of shop primers (ISO 17652-2:2003)*

EN ISO 25239-3:2020, *Friction stir welding - Aluminium - Part 3: Qualification of welding operators (ISO 25239-3:2020)*

EN ISO 25239-5:2020, *Friction stir welding - Aluminium - Part 5: Quality and inspection requirements (ISO 25239-5:2020)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 15085-1:—¹ apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <http://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>