SLOVENSKI STANDARD
SIST EN 15085-5:2023

01-maj-2023

Železniške naprave - Varjenje železniških vozil in sestavnih delov - 5. del: Nadzor, preskušanje in dokumentacija

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

Bahnanwendungen - Schweißen von Schienenfahrzeugen und -fahrzeugteilen - Teil 5: Prüfung und Dokumentation

Applications ferroviaires - Soudage des véhicules et des composants ferroviaires - Partie 5 : Vérification, contrôles et documentations

Ta slovenski standard je istoveten z: **EN 15085-5:2023**

ICS:

25.160.10	Varilni postopki in varjenje	Welding processes
45.060.01	Železniška vozila na splošno	Railway rolling stock in general

SIST EN 15085-5:2023 **en,fr,de**

EUROPEAN STANDARD

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English Version

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

Applications ferroviaires - Soudage des véhicules et des composants ferroviaires - Partie 5 : Vérification, contrôles et documentation

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This European Standard was approved by CEN on 23 January 2023.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents

European foreword

This document (EN 15085-5:2023) 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of an identical text or by endorsement, at the latest by September 2023, and conflicting national standards shall be withdrawn at the latest by September 2023.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 15085-5:2007.

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 15085-5:2023 includes the following changes with respect to EN 15085-5:2007:

a) Normative references have been updated;

b) Clause 3, Terms and definitions has been updated;

c) Clause 4, Inspection and testing of welded joints has been revised;

d) Clause 5, Test planning and acceptance criteria has been revised;

e) Clause 6, Documentation has been revised;

f) Clause 7, Non-conformity has been revised;

g) Clause 8, Sub-contractors has been removed;

h) Clause 9, Declaration of conformity has been removed;

i) Clause 10, Traceability has been revised and renamed in Clause 8;

j) Annex A has been removed;

k) 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.

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:

— inspections and testing to be executed on the welds;

— destructive as well as non-destructive tests to be performed;

— necessary documentation to issue to declare the conformity of the products.

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

EN 15085-2:2020, *Railway applications - Welding of railway vehicles and components - Part 2: Requirements for welding manufacturer*

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

EN 15085-4:2023, *Railway applications - Welding of railway vehicles and components - Part 4: Production requirements*

EN 15085-6:2022, *Railway applications - Welding of railway vehicles and components - Part 6: Maintenance welding requirements*

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

EN ISO 3834-1:2021, *Quality requirements for fusion welding of metallic materials - Part 1: Criteria for the selection of the appropriate level of quality requirements (ISO 3834-1:2021)*

EN ISO 3834-5:2021, *Quality requirements for fusion welding of metallic materials - Part 5: Documents with which it is necessary to conform to claim conformity to the quality requirements of ISO 3834-2, ISO 3834-3 or ISO 3834-4 (ISO 3834-5:2021)*

EN ISO 5817:2014, *Welding - Fusion-welded joints in steel, nickel, titanium and their alloys (beam welding excluded) - Quality levels for imperfections (ISO 5817:2014)*

EN ISO 9712:2022, *Non-destructive testing - Qualification and certification of NDT personnel (ISO 9712:2022)*

EN ISO 10042:2018, *Welding - Arc-welded joints in aluminium and its alloys - Quality levels for imperfections (ISO 10042:2018)*

EN ISO 17635:2016, *Non-destructive testing of welds - General rules for metallic materials (ISO 17635:2016)*

EN ISO 17637:2016, *Non-destructive testing of welds - Visual testing of fusion-welded joints (ISO 17637:2016)*

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 https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Inspection and testing of welded joints

4.1 General

The manufacturer is responsible for the correct implementation of inspection activities according to the requirements of this document. For maintenance EN 15085-6:2022 shall also be applied.

The tasks of inspection and testing are listed in the responsibilities of the welding coordinator in Annex A of EN 15085-2:2020. Where these requirements are delegated, they should be continuously supervised and subject to periodic internal audits by the welding coordinator or welding coordination team.

4.2 Inspection and testing before welding

4.2.1 Welding coordination team

Prior to any type of welding activity, the welding coordination team shall check/confirm the following items based on EN 15085-2:2020, Annex A:

— suitability and validity of welder's and welding operator's qualification certificates;

— suitability and validity of the welding procedure specification;

— suitability of working conditions for welding, including the environment;

— performance and assessment of mock-ups e.g. supplementary weld tests, daily production tests.

4.2.2 Welder or welding operator

Immediately prior to welding the welder or welding operator shall check/confirm the following items:

— The welding machine is within calibration/validation and is not damaged;

— Jigs and fixtures are not damaged;

— The availability of the WPS and/or work instruction and fabrication drawing;

— Condition of the weld preparation (e.g. fit-up, cleanliness, tack welding, etc.);

— Correct identification of the parts to be welded;

— Compliance of the welding consumable with the WPS.

Where any of the above are non-compliant the welding coordination team shall be informed.

4.3 Inspection and testing during welding

4.3.1 Welding coordination team

The welding coordination team shall perform regular surveillance of all welding activities within the workshop to confirm the required welding process control. The frequency of these surveillances shall be determined by the welding coordinator and documented.

4.3.2 Welder or welding operator

During welding the welder or welding operator shall check/confirm the following items:

— Suitable weld profile and adequate cleaning between welding passes,

— Compliance with the WPS and/or work instruction, e.g. pre-heating/interpass temperatures, welding parameters.

Compliance with the welding sequence defined in the welding planning documents.

4.4 Inspection and testing after welding

4.4.1 General

Inspection and testing after welding shall be undertaken by competent personnel. For CT 1 and CT 2 the personnel shall be independent of welding production.

4.4.2 Welding coordination team

The welding coordination team shall be involved in the non-destructive and destructive testing and any post welding operations e.g. heat treatment, ageing are performed according to the requirements of the welding planning documents.

4.4.3 Welder or welding operator

After welding the welder or welding operator shall check/confirm the following items:

— that the weld is complete;

— that the weld is cleaned;

— that the profile and dimensions of the weld conform to the drawing.

4.5 Qualification of visual inspection personnel

4.5.1 General

Confirmation of visual acuity is required.