SLOVENSKI STANDARD
SIST EN 15085-1:2023

01-september-2023

Železniške naprave - Varjenje železniških vozil in njihovih delov - 1. del: Splošno

Railway applications - Welding of railway vehicles and components - Part 1: General

Bahnanwendungen - Schweißen von Schienenfahrzeugen und -fahrzeugteilen - Teil 1: Allgemeines

Applications ferroviaires - Soudage des véhicules et des composants ferroviaires - Partie 1 : Généralités

Ta slovenski standard je istoveten z: **EN 15085-1:2023**

ICS:

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

SIST EN 15085-1:2023 **en,fr,de**

EUROPEAN STANDARD

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English Version

Railway applications - Welding of railway vehicles and components - Part 1: General

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 15085-1:2023) 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of an identical text or by endorsement, at the latest by December 2023, and conflicting national standards shall be withdrawn at the latest by December 2023.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 has been prepared under a standardization request given to CEN by the European Commission and the European Free Trade Association.

This document supersedes EN 15085-1:2007+A1:2013.

This document includes the following significant technical changes with respect to EN 15085-1:2007+A1:2013:

a) The Foreword has been updated ;

b) The Introduction has been revised;

c) The Scope has been updated;

d) Terms and definitions have been revised;

e) Clause 4 “General requirements”: change of “company certification” to “manufacturer classification”;

f) New Clause 5 “Other applicable regulations” added;

g) New Annex A “Welding on tank wagons” added.

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 laid down 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 defines terms in the field of welding on railway vehicles and associated components. This document is applicable to all assemblies, sub-assemblies or parts welded by any welding process, either manual, partly mechanized, fully mechanized, or automatic welding as defined in EN ISO 4063.

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 45020, *Standardization and related activities - General vocabulary (ISO/IEC Guide 2)*

CEN/TR 14599, *Terms and definitions for welding purposes in relation with EN 1792*

EN ISO 17659, *Welding - Multilingual terms for welded joints with illustrations (ISO 17659)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions given in CEN/TR 14599, EN ISO 17659 and EN 45020 and the following 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/

3.1
classification level
level to classify the welded railway vehicle or the welded component depending on the safety relevance

Note 1 to entry The classification level is abbreviated by “CL”.

3.2
safety relevance
classification based on the severity of the consequences of a failure of a welded component with respect to the effects on persons, facilities and the environment

Note 1 to entry For more detailed information on safety relevance low, medium, high: see EN 15085-2:2020, Clause 4.1.

3.3
weld performance class
performance requirements of the welded joint as defined by the stress category and the safety category of the welded joint

Note 1 to entry The weld performance class is abbreviated by “CP” (class of performance).

3.4
weld inspection class
classification that describes the inspection requirements for a given weld

Note 1 to entry The weld inspection class is abbreviated by “CT” (class of testing).

3.5
customer
organisation that defines the technical requirements, quality requirements and the acceptance procedures for the welded product

3.6
manufacturer
organisation that performs different types of activity on railway vehicles or parts of railway vehicles such as Design (D), Production (P), Maintenance (M), Purchase and Supply (S)

Note 1 to entry: see EN 15085-2:2020, 4.2.

3.7
stress category
category determined by the stress factor

Note 1 to entry For more detailed information on stress categories low, medium, high: see EN 15085-3:2022.

3.8
safety category
classification based on the severity of the consequences of failure of a single welded joint with respect to the effects on persons, facilities and the environment

Note 1 to entry For more detailed information on safety categories low, medium, high: see EN 15085-3:2022.

3.9
qualification (for personnel)
evidence of training, professional knowledge, skill and experience to enable the personnel to perform the required tasks

3.10
qualified (personnel)
competent personnel with evidence of training, professional knowledge, skill and experience

Note 1 to entry As a minimum, proven by an internal test (e.g. personnel for VT according to EN ISO 9712, welders according to EN ISO 9606 (all parts)).

3.11
production weld-test
(mock-up)
supplementary weld test performed under representative conditions as those used in production aimed to give specific data (e.g. mechanical data, evidence of the skill of the welder, quality of the weld etc.) depending on the requirement

3.12
first article inspection
(FAI)
objective evidence that all engineering design and specification requirements are correctly understood, accounted for, verified and recorded

[SOURCE: EN 9102:2016, 3.13 - EN 9102 under revision. Latest available version prEN 9102:2022-08]

4 General requirements

Generally, customers prescribe performances applicable to finished products; they do not prescribe welding methods. In this case, the manufacturer is free to select whichever welding process, consumables and joint preparation they wish to implement.

In return, upon customer request, the manufacturer shall demonstrate that they have full control and that the quality level requested by customers will be achieved, in particular through the following:

— manufacturer classification;

— welder and welding operator qualification;

— welding procedure and production weld test qualification.

As regards to the drawings issued prior to the initial publication of this series of standard, the relevance of the design requirements prescriptions defined in series of EN 15085 shall be documented, but the drawings do not need necessarily to be updated.

For materials and welding processes outside the scope of this standard, the customer and manufacturer shall agree on new rules or the applicability of existing rules, which achieve the same level of control as those ensured by this standard. These shall include agreement on quality and classification requirements of the manufacturer, the application of weld performance classes based on stress and safety categories, the definition of imperfection levels to ensure the required levels of performance, and rules for production and inspection to ensure the achievement of quality requirements.

5 Other applicable regulations

5.1 General

Items of equipment subject to specific regulations (in application of European directive) are not relevant to the scope of this series of standards, e.g. pressure vessels according to EN 286-3 and EN 286-4.

For welding on tank wagons, Annex A applies.

5.2 Components produced by other industrial sectors

Components produced by other industrial sectors with specific know-how shall be considered as “trade supplied components”. The integration of these components shall demonstrate the compatibility with railway operating conditions. This compatibility is established and recorded with one or more of the following methods:

— technical specifications (production and testing requirements),

— type test or endurance test,

— calculation report,

— return of experience,

— any other methods agreed during the review of requirements.

Annex A
(normative)

Welding on tank wagons

For welding on tank wagons, different rules are applicable for the underframes and the tanks.

NOTE 1 The underframes requirements are given in EN 15085 series.

NOTE 2 Tanks requirements are given in RID, 6.8.2.6.

Figure A.1 shows the interfaces between the tank and the railway vehicle. The connection between the underframe and the tank (section A — A) is defined in Figure A.2.

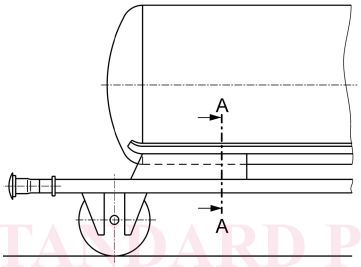

Figure A.1 — Interface between railway vehicle and tank

a) Version 1 (welded)

b) Version 2 (e.g. screwed, riveted)

Key

1 Wall of the tank
2 Connecting plate
3 Underframe attachment plate
4 Connection
5 Connecting plate linked with underframe attachment plate

NOTE The weld between items 1 and 2 is included in the scope of tank entity. The weld between items 2 and 3 is included in the scope of the EN 15085 series.

Figure A.2 — Connection between the tank and the underframe

NOTE 3 According to RID, the capability of the manufacturer to achieve welding works on railway tanks for dangerous material transportation, is agreed by the competent authority.

NOTE 4 To be agreed by the competent authority, evidence is given on the use of the EN 14025 standard, for welding process validation of minimum resilience (27 J by −20 C) according to RID.