SLOVENSKI STANDARD
oSIST prEN 15085-1:2021

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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: prEN 15085-1

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

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English Version

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

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European foreword

This document (prEN 15085-1:2021) has been prepared by Technical Committee CEN/TC 256 “Railway applications” the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

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

This document has been prepared under a standardization request given to CEN by the European Commission and the European Free Trade Association.

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 2:2004)*

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
describes the consequences of a failure of a welded component in 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.

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
defines the inspections to be carried out for a given weld with respect to the weld performance class

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 prEN 15085-3:2021.

3.8
safety category
defines the consequences of failure of the single welded joint in 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 prEN 15085-3:2021.

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 production conditions 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

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 should be reviewed.

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 controls 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.

Annex A
(informative)
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 1 shows the limits between the tank and the railway vehicle. The junction between the underframe and the tank (section A — A) is defined in Figure 2.

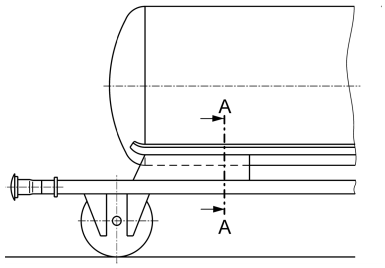

Figure A.1 — Limit between railway vehicle and tank

a) b)

Key

a) Version 1 (welded)
b) Version 2 (e.g. screwed, riveted)

1 Wall of the tank
2 Fixation bar
3 Fixation plate
4 Junction
5 Fixation bar linked with fixation plate.

NOTE The wall of the tank (1), the fixation bar (2) and the link between the tank's wall and the fixation bar (here, the weld) are associated to other "tank" entity.

Figure A.2 — Junction 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.

Bibliography

[1] EN ISO/IEC 17000, *Conformity assessment — Vocabulary and general principles (ISO/IEC 17000)*

[2] EN ISO 3834, *(all parts),* Quality requirements for fusion welding of metallic materials

[3] Directive 2008/68/EC of the European Parliament and of the Council of 24 September 2008 on the inland transport of dangerous goods (RID)

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

[5] prEN 15085-3:-[1)], *Railway applications — Welding of railway vehicles and components — Part 3: Design requirements*

[6] prEN 15085-4:-[2)], *Railway applications — Welding of railway vehicles and components — Part 4: Production requirements*

[7] prEN 15085-5:-[3)], *Railway applications — Welding of railway vehicles and components — Part 5: Inspection, testing and documentation*

[8] prEN 15085-6:-[4)], *Railway applications — Welding of railway vehicles and components — Part 6: Maintenance welding requirements*

[9] EN 286-3:1994, *Simple unfired pressure vessels designed to contain air or nitrogen - Part 3: Steel pressure vessels designed for air braking equipment and auxiliary pneumatic equipment for railway rolling stock*

[10] EN 286-4:1994, *Simple unfired pressure vessels designed to contain air or nitrogen - Part 4: Aluminium alloy pressure vessels designed for air braking equipment and auxiliary pneumatic equipment for railway rolling stock*

[11] EN ISO 4063, *Welding and allied processes - Nomenclature of processes and reference numbers (ISO 4063)*

[12] EN ISO 9712, *Non-destructive testing - Qualification and certification of NDT personnel (ISO 9712)*

[13] EN ISO 9606 (all parts), *Qualification testing of welders — Fusion welding*

[14] ISO/TR 25901 (all parts), *Welding and allied processes — Vocabulary*

1) Under preparation. Stage at time of publication: prEN 15085-3:2021.

2) Under preparation. Stage at time of publication: prEN 15085-4:2020.

3) Under preparation. Stage at time of publication: prEN 15085-5:2020.

4) Under preparation. Stage at time of publication: prEN 15085-6:2020.