SLOVENSKI STANDARD
SIST EN 15085-2:2020/oprA1:2022

01-februar-2022

Železniške naprave - Varjenje železniških vozil in komponent - 2. del: Zahteve za proizvajalca varilnih naprav - Dopolnilo A1

Railway applications - Welding of railway vehicles and components - Part 2: Requirements for welding manufacturer

Bahnanwendungen - Schweißen von Schienenfahrzeugen und -fahrzeugteilen - Teil 2: Anforderungen an Schweißbetriebe

Applications ferroviaires - Soudage des véhicules et des composants ferroviaires - Partie 2 : Exigences de qualité du constructeur

Ta slovenski standard je istoveten z: **EN 15085-2:2020/prA1**

ICS:

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

SIST EN 15085-2:2020/oprA1:2022 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

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EN 15085-2:2020

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English Version

Railway applications - Welding of railway vehicles and components - Part 2: Requirements for welding manufacturer

Applications ferroviaires - Soudage des véhicules et des composants ferroviaires - Partie 2 : Exigences de qualité du constructeur

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This draft amendment is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 256.

This draft amendment A1, if approved, will modify the European Standard EN 15085-2:2020. If this draft becomes an amendment, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration.

This draft amendment was established by CEN 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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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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European foreword

This document (EN 15085-2:2020/prA1:2021) 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 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.

1 Modification to Introduction

Replace the current introduction by the following:

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 documents 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 documents does not deal with product qualification.

NOTE This series of documents 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.

2 Modification to Normative references

Replace the EN 15085 series by the following:

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

prEN 15085-3:-,[2] *Railway applications — Welding of railway vehicles and components — Part 3: Design requirements*

prEN 15085-4:-,[3] *Railway applications — Welding of railway vehicles and components — Part 4: Production requirements*

prEN 15085-5:-,[4] *Railway applications — Welding of railway vehicles and components — Part 5: Inspection, testing and documentation*

prEN 15085-6:-,[5] *Railway applications — Welding of railway vehicles and components — Part 6: Maintenance welding requirements*

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

[2] Under preparation. Stage at time of publication: prEN 15085-3:2021

[3] Under preparation. Stage at time of publication: prEN 15085-4:2020

[4] Under preparation. Stage at time of publication: prEN 15085-5:2020

[5] Under preparation. Stage at time of publication: prEN 15085-6:2020

3 Modification to 4.1, Classification levels

Add footnote:

"[2]Under preparation. Stage at time of publication: prEN 15085-3:2021"

4 Modification to 5.2, Welders and welding operators

Add footnote

"[3]Under preparation. Stage at time of publication: prEN 15085-4:2020"

5 Modification to 5.4, Inspection personnel

Add footnote:

"[4]Under preparation. Stage at time of publication: prEN 15085-5:2020"

6 Modification to 5.5, Technical requirements

Add footnote:

"[3]Under preparation. Stage at time of publication: prEN 15085-4:2020"

and

"[5]Under preparation. Stage at time of publication: prEN 15085-6:2020"

7 Modification to 5.6, Welding procedure specification (WPS)

Add footnote:

"[3]Under preparation. Stage at time of publication: prEN 15085-4:2020"

and

"[5]Under preparation. Stage at time of publication: prEN 15085-6:2020"

8 Modification to 7, Supervision of subcontracting

Add footnote:

"[4]Under preparation. Stage at time of publication: prEN 15085-5:2020"

9 Modification to Annex B, Table B.1 – Minimum requirements of manufacturers

For row 2 " Weld performance classes (CP) according to EN 15085-3", *add footnote:*

"[2]Under preparation. Stage at time of publication: prEN 15085-3:2021"

For row 7 " Welders or welding operators shall be qualified according to EN 15085-4." *add footnote:*

" [3]Under preparation. Stage at time of publication: prEN 15085-4:2020"

*For row 8 "*Testing personnel for welding quality tests shall be qualified according to EN 15085-5.*", add footnote:*

" [4]Under preparation. Stage at time of publication: prEN 15085-5:2020"

For row 9 " Welding procedure specification (WPS) and / or welding procedure qualification record (WPQR) according to EN 15085-4." add footnote:

" [4]Under preparation. Stage at time of publication: prEN 15085-5:2020"

10 Modification to Annex D, Table D.1 - Requested technical knowledge of welding coordinators with different levels of competence

For Table D.1 " Requested technical knowledge of welding coordinators with different levels of competence" replace *the current Table D.1 by the following table:*

1 Welding processes and equipment	Level A	Level B	Level C
1.1 Cutting and other edge preparation processes			
Understand in detail/acquire a full knowledge of/explain/interpret the basic principles and scope of application of the most common cutting and edge preparation processes used in welded construction and their principles of action, including equipment, procedures and common problems. Specifies and knows how to inspect the use of torch, plasma, gouging electrode and air arc cutting processes.	3	2	2
1.2 Heating and heat straightening			
Understand in detail/acquire a full knowledge of/explain/interpret the basic principles and scope of application of the heating, flame rectification and heat straightening processes used in welded construction and their principles of action, including equipment, procedures and common problems. Specifies and knows how to inspect use of the processes.	4	2	2
1.3 Preheating, post-heating			
Understand in detail/acquire a full knowledge of/explain/interpret the basic principles and scope of application of the preheating (including preheating of weld zones when the ambient temperature is below 5 °C) and post-heating processes used in welded construction and their principles of action, including equipment, procedures and common problems. Specifies and knows how to inspect use of the processes.	4	3	2
Knowledge of weld sequence plans for manufacturing	3	3	2

2 Materials and their behaviour during welding	Level A	Level B	Level C
2.1 Designation of base materials			
Knowledge of how to search for and use standards for definition, designation and classification of the metallic materials used.	3	2	2
Be able to determine the equivalence of a material (including cancelled designations).	4	1	1
2.2 Heat treatment of base materials and welded joints			
Understand in detail/Give the principles of materials' properties when they have been heat-treated. Including stress-relief heat treatment applications (general or localized).	4	2	2
2.3 Fatigue cracking phenomena			
Understand the basic mechanisms of fatigue cracking and how variables have an influence on crack formation. Be able to propose solutions to improve the rail component's service strength.	3	1	1
2.4 Thermo-mechanically treated and high strength low alloy steels, if used			
Knowledge of how to weld thermo-mechanically treated steels and high strength low alloy steel	3	1	1
Understand the influence of repair welding on thermo-mechanically treated steels and high strength low alloy steels	3	1	1
2.5 Aluminium and aluminium alloys, if used			
Knowledge of how to weld aluminium and its alloys.	3	2	2
Knowledge of how to work with aluminium and its alloys.	3	2	2
Knowledge of the different welding processes for aluminium and its alloys.	3	3	2
Understand the influence of maintenance welding on aluminium and its alloys.	3	2	1

3 Design and calculation	Level A	Level B	Level C
3.1 Behaviour of welded structures under dynamic loading			
Explain the phenomenon of fatigue.	3	2	1
Fully understand the development of fatigue, the calculation of loading cycles, the influence of notches and ways to prevent them.	3	2	1
Understand the method for determining a stress category (EN 15085-3[2]).	3	2	1
Knowledge of the fundamental design rules for a component subject to fatigue.	3	2	1
3.2 Finishing treatment of welds as per EN 15085-3[2]			
Understand and explain the gains expected of treatments to improve weld shape and finishing treatments in order to reduce residual stress.	3	2	1
Knowledge of how to specify and inspect the use of finishing treatment.	3	2	1
3.3 Structural detailing of railway vehicles and components as per EN 15085-3[2]			
Understand the specific requirements for the design of structural members in this field of application with regard to weld calculation.	3	2	1
Understand the design documents according to EN 15085-3[2] and other relevant standards, technical specifications and guidelines	4	3	2

4 Fabrication, applications engineering	Level A	Level B	Level C
4.1 Quality control during manufacture			
Understand in detail the requirements and function of quality control in manufacturing. Know precisely the roles of the welding coordinator as per EN ISO 14731 and EN 15085-2. Supervise traceability and control.	3	3	3
Knowledge of work preparation (industrialization) of welded components according to EN 15085.	3	3	2
Knowledge of the necessary welding planning documents according to EN 15085-4[3].	4	3	3
Knowledge of weld sequence plans for manufacturing.	3	3	2
4.2 Health and safety			
Understand in detail/acquire a full knowledge of/explain the health and safety hazards involved in welding and related techniques and the methods to mitigate them. Recommend and specify risk prevention techniques and personal and collective protective equipment.	3	2	2
4.3 Non-destructive testing			
Knowledge of the use and ability to explain the scope of non-destructive tests applied to welded components. Supervise inspection and testing.	3	2	1
Understand in detail/acquire a full knowledge of/explain the principles of visual inspection. Interpret the appropriate standards (e.g. EN ISO 5817, EN ISO 10042 and EN 15085-3[2]).	3	2	2
Be able to interpret a defect and link it to its potential causes.	3	2	1
4.4 Repair welding			
Knowledge of repair welding problems both in manufacturing and in service.	4	4	3
Knowledge of maintenance operations and the related operating criteria.	4	3	2
Coordinate feedback from maintenance welding operations.	4	3	2
Develop weld sequence plans for repair welding	3	3	2
4.5 Fitness for purpose			
Acquire an understanding of the need to have and use critical evaluation techniques in engineering. Coordinate feedback relating to the analysis of welded assembly failures.	3	2	1
Knowledge of the in-service behaviour of the components whose welding processes are under his/her supervision.	3	2	1