



SLOVENSKI STANDARD

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Železniške naprave - Varjenje železniških vozil in elementov - 2. del: Zahteve za kakovost in certificiranje ponudnika varilnih storitev

Railway applications - Welding of railway vehicles and components - Part 2: Quality requirements and certification of welding manufacturer

Bahnanwendungen - Schweißen von Schienenfahrzeugen und -fahrzeugteilen - Teil 2: Qualitätsanforderungen und Zertifizierung von Schweißbetrieben

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

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English Version

Railway applications - Welding of railway vehicles and
components - Part 2: Quality requirements and certification of
welding manufacturer

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

Bahnanwendungen - Schweißen von Schienenfahrzeugen
und -fahrzeugteilen - Teil 2: Qualitätsanforderungen und
Zertifizierung von Schweißbetrieben

This European Standard was approved by CEN on 18 August 2007.

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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 Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 15085-2:2007) 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of an identical text or by endorsement, at the latest by April 2008, and conflicting national standards shall be withdrawn at the latest by April 2008.

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: Quality requirements and certification of welding manufacturer
- Part 3: Design requirements
- Part 4: Production requirements
- Part 5: Inspection, testing and documentation

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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 laid down in the standards series EN ISO 3834. The basis of these provisions are the basic technical welding standards in respect of the special requirements for the construction of railway vehicles.

This standard is aimed at defining the terms of enforcement applicable to European Standards, it should not be construed as a substitute to these standards.

This standard can also be used by internal and external parties, including certification bodies, to assess the organisation's ability to meet customer, regulatory and the organisation's own requirements.

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1 Scope

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

This part of the series defines the certification levels as well as the requirements for welding manufacturers and describes the procedure for the recognition of welding manufacturers.

2 Normative references

The following referenced documents are indispensable for the application 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 287-1, *Qualification test of welders – Fusion welding – Part 1: Steels*

EN 473, *Non destructive testing – Qualification and certification of NDT personnel – General principles*

EN 1418, *Welding personnel – Approval testing of welding operators for fusion welding and resistance weld setters for fully mechanized and automatic welding of metallic materials*

EN 15085-1:2007, *Railway applications - Welding of railway vehicles and components - Part 1: General*

EN 15085-3:2007, *Railway applications – Welding of railway vehicles and components – Part 3: Design requirements*

EN 15085-4:2007, *Railway applications – Welding of railway vehicles and components – Part 4: Production requirements*

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

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

EN ISO 14555, *Welding - Arc stud welding of metallic materials (ISO 14555:2006)*

EN ISO 14731:2006, *Welding coordination - Tasks and responsibilities (ISO 14731:2006)*

EN ISO 15607, *Specification and qualification of welding procedures for metallic materials - General rules (ISO 15607:2003)*

EN ISO 15609 (all parts), *Specification and qualification of welding procedures for metallic materials – Welding procedure specification*

EN ISO 15610 *Specification and qualification of welding procedures for metallic materials - Qualification based on tested welding consumables (ISO 15610:2003)*

EN ISO 15611, *Specification and qualification of welding procedures for metallic materials - Qualification based on previous welding experience (ISO 15611:2003)*

EN ISO 15612, *Specification and qualification of welding procedures for metallic materials - Qualification by adoption of a standard welding procedure (ISO 15612:2004)*

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

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EN ISO 15614 (all parts)¹⁾ *Specification and qualification of welding procedures for metallic materials – Welding procedure test*

EN ISO 15620, *Welding - Friction welding of metallic materials (ISO 15620:2000)*

EN ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025:2005)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 15085-1:2007 apply.

4 Certification of welding manufacturers

The quality requirements for welding manufacturers, which carry out welding work on rail vehicles, components and sub-assemblies, are specified by the standard series EN ISO 3834. Dependant on the certification level, the requirements of EN ISO 3834-2, EN ISO 3834-3 or EN ISO 3834-4 shall be fulfilled in principle (see Annex A).

Welding manufacturers, which carry out welding work on railway vehicles, components and sub-assemblies, shall be certified according to this standard, if specified.

Compliance with the requirements shall be checked and certified by a recognised manufacturer certification body (see Clause 6).

Four certification levels (CL) are laid down for the certification of welding manufacturers (Level 1 to Level 4). Level 1 to Level 3 depends on the weld performance classes CP A to CP D of the welded joints specified in EN 15085-3:2007, Table 2.

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Table 1 contains a description of the certification level and the allocation in the weld performance classes.

The required certification level depends on the following two items:

- 1) Table 1;
- 2) safety relevance of the components or sub-assemblies where the welded part is integral (see list beneath Table 1).

1) For railway applications, only EN ISO 15614-1, EN ISO 15614-2, prEN ISO 15614-3, EN ISO 15614-4, EN ISO 15614-7, EN ISO 15614-11, EN ISO 15614-12 and EN ISO 15614-13 are relevant.

Table 1 — Certification level

Description	Certification level (CL)
This level applies to welding manufacturers which manufacture welded railway vehicles or their welded parts with welded joints classified in weld performance classes CP A to CP D. Certification level CL 2 to CL 4 is included.	CL 1
This level applies to welding manufacturers which manufacture welded parts of railway vehicles with welded joints classified in weld performance classes CP C2 to CP D. Welded joints classified in weld performance class CP C1 are included if these welds are checked according to weld inspection class CT 1 according to EN 15085-5:2007, Table 1. Certification level CL 4 is only included according to welded joints of certification level CL 2 or CL 3.	CL 2
This level applies to welding manufacturers which manufacture welded parts of railway vehicles with welded joints classified in weld performance class CP D.	CL 3
This level applies to manufacturers which do not weld but design railway vehicles and parts of rail vehicles or buy and assemble or sell them. Certification not required for welding works of certification level CL 3.	CL 4

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Because of their safety relevance the following components and sub-assemblies shall be welded by welding manufacturers with a certification level CL 1.

- bogie frames and bolsters;
- body shell components (e.g. under frames, structures);
- buffers and draw gear;
- wheel set components (e.g. wheel set mountings, axle boxes, spring supports);
- brake equipment (e.g. magnetic track brake, brake rods, brake triangles, brake cylinders, brake cross beams);
- supporting frames for heavy components (e.g. traction units, pantographs);
- welded components for drag transmission from bogie to vehicle;
- vibration dampers and their link between bogie and vehicle or between vehicles;
- finishing welding of castings within components indicated above;
- external fuel tanks.

Annex A contains information about possible classifications of the certification levels for further components and sub-assemblies of railway vehicles.

According to EN 15085-3:2007, certification level CL 1 to CL 3 necessary for the product shall be clearly indicated in the engineering documentation (e.g. on the drawings).

If required by the customer, the certification level shall be agreed with him respecting the national safety authority.

5 Quality requirements for the welding manufacturer

5.1 Staff requirements

5.1.1 Welders and welding operators

The welding manufacturer shall have welders and welding operators with qualification in accordance with EN 287-1, or EN ISO 9606-2 or with EN 1418.

Qualification shall cover each the welding processes, material groups, joint types and welding positions needed for production.

Such qualification should be carried out by either:

- accredited examining body,
- responsible welding coordinator of the manufacturer, recognised by the manufacturer certification body as specified in 5.1.2.

If fillet welds are done in production a fillet weld test piece is necessary.

5.1.2 Welding coordination

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The welding manufacturer shall have suitably experienced welding coordinators with the relevant technical knowledge according to EN ISO 14731. The manufacturer shall clearly prove to the manufacturer certification body that the technical knowledge of the welding coordinator(s) is at the required level. Tasks and areas of competence of welding coordinators are given in Annex B.

For the purpose of this standard, three levels of welding coordinators are distinguished:

Welding coordinators with comprehensive technical knowledge (Level A)

Personnel with experience of welding supervision for the production of railway vehicles and/or components of at least three years and proof of comprehensive technical knowledge may be considered to satisfy the requirements.

Welding coordination personnel with the following qualifications or holding acceptable national qualifications may be also considered to satisfy the above mentioned requirements:

- Personnel with qualification according to Doc. IAB-002-2000/EFW-409 – International Welding Engineer (IWE) or European Welding Engineer (EWE);
- Personnel with qualification according to Doc. IAB-003-2000/EFW-410 – International Welding Technologist (IWT) or European Welding Technologist (EWT) with suitable experience in welding supervision and proof of comprehensive technical knowledge.

Welding coordinators with specific technical knowledge (Level B)

Personnel with experience of welding supervision for the production of railway vehicles and/or components of at least three years and proof of specific technical knowledge may be considered to satisfy the requirements.

Welding coordination personnel with the following qualifications or holding acceptable national qualifications may also be considered to satisfy the above mentioned requirements:

- Personnel with qualification according to Doc. IAB-003-2000/EFW-410 – International Welding Technologist (IWT) or European Welding Technologist (EWT);
- Personnel with qualification according to Doc. IAB-004-2000/EFW-411 – International Welding Specialist (IWS) or European Welding Specialist (EWS) with suitable experience in welding supervision and proof of specific technical knowledge.

Welding coordinators with basic technical knowledge (Level C)

Personnel with experience of welding supervision for the production of railway vehicles and/or components of at least three years and proof of basic technical knowledge may be considered to satisfy the requirements.

Welding coordination personnel with the following qualifications or holding acceptable national qualifications may also be considered to satisfy the above mentioned requirements:

- Personnel with qualification according to Doc. IAB-004-2000/EFW-411 – International Welding Specialist (IWS) or European Welding Specialist (EWS);
- Personnel with qualification according to Doc. IAB-005-2001/EFW-451 – International Welding Practitioner (IWP) or European Welding Practitioner (EWP) with suitable experience in welding supervision and proof of specific technical knowledge.

Depending on the certification level, the welding manufacturer shall have for each location site welding coordinators specified in Annex C. The number of welding coordinators depends on the extent of the welding production and the surveillance of subcontractors.

In general welding coordinators should be employed by the manufacturer.

The owners of firms, managers, works managers, production managers cannot be recognised as responsible welding coordinator for the certification level CL 1. For small welding manufacturers recognition is possible if a welding coordinator with comprehensive technical knowledge is available and a deputy is present in the production shop (at least with basic technical knowledge).

Recognition as deputy of the responsible welding coordinator is possible. For the certification level CL 2 recognition as responsible welding coordinator is possible.

NOTE Small welding manufacturer means welding manufacturer with a single welding shop.

Only recognised deputies with equal or higher qualifications are entitled to deputise without restriction for the responsible welding coordinator. Exceptions for small welding manufacturers are possible according to the footnotes in Annex C.

For welding manufacturers with several welding shops a further deputy with basic technical knowledge is required for each welding shop.

5.1.3 Subcontracted welding coordinator

In special cases subcontracted welding coordinators who are not employed by the welding manufacturer may be recognised as responsible welding coordinator if the following conditions are fulfilled:

- 1) Only one welding coordinator per location site shall be subcontracted.
- 2) At least one deputy who is employed by the manufacturer is available in the location site and recognised (see Annex C – for certification level CL 3 and CL 4 not required).