



# SLOVENSKI STANDARD

SIST EN 15085-1:2008

01-april-2008

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## Železniške naprave - Varjenje železniških vozil in elementov - 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 ferroviaires et des pièces - Partie 1 : Généralités

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### **ICS:**

25.160.10

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**SIST EN 15085-1:2008**

**en,fr,de**

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ICS 25.160.10; 45.060.01

English Version

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

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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  
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

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## Foreword

This document (EN 15085-1:2007) 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of an identical text or by endorsement, at the latest by April 2008, and conflicting national standards shall be withdrawn at the latest by April 2008.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

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland 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 standard is aimed at defining the terms of enforcement applicable to European Standards. It will not be construed as a substitute for 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.

With respect to the railway environment, this series of standards defines the certification and quality requirements for the welding manufacturer to undertake new building and repair work. It then provides an essential link between performance requirements defined during design, and achieves appropriate quality welds during production and the demonstration of the required quality by inspection.

This link is achieved by defining a weld performance class during design, which is based on safety and stress factors relevant to railway operation. Quality levels of imperfections are assigned to weld performance classes to ensure a certain level of performance intended during design. Based on these weld performance classes, certification levels for production as well as inspection and testing and qualifications for welding personnel of the manufacturer are specified.

This standard deals with welding steel and aluminium alloys including castings.

NOTE The principle of this standard may also be applied for welding of other parent materials (e.g. Cu, Mg).

This part of the series provides general recommendations and definitions for welding railway vehicles and associated components. Except for specific provisions which are laid down contractually, this standard applies 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.

This series of standards does not deal with product qualification.

Items of equipment subject to specific regulations are not relevant to the scope of this series of standards, e.g. air reservoirs according to EN 286-3 and EN 286-4.

## 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 45020:2006, *Standardization and related activities - General vocabulary (ISO/IEC Guide 2:2004)*

CEN/TR 14599:2005, *Terms and definitions for welding purposes in relation with EN 1792*

EN ISO 17659:2004, *Welding – Multilingual terms for welded joints with illustrations (ISO 17659:2002)*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in CEN/TR 14599:2005, EN ISO 17659:2004 and EN 45020:2006 and the following apply.

### 3.1

#### **manufacturer certification body**

body recognised by the national safety authority that has a proven competence in the scope of this series of standards and certifies the manufacturer according to the requirements of EN 15085-2 (see Annex A)

**3.2  
certification level**

level to classify the welded railway vehicle or the welded component depending on the weld performance class (CP)

NOTE The certification level is abbreviated by "CL".

**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 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 The weld inspection class is abbreviated by "CT" (class of testing).

**3.5  
customer**

organisation responsible for defining the technical requirements, quality requirements and the acceptance procedures for the welded product

**3.6  
manufacturer**  
organisation that

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— uses a welding facility to manufacture or maintain (including repair) railway vehicles or parts of railway vehicles including finishing welding of castings – certification level CL 1, CL 2, or CL 3 (see EN 15085-2);

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or

— designs welded rail vehicles or parts of welded rail vehicles, or buys welded parts for assembly into railway vehicles or sells them for assembly into railway vehicles – certification level CL 4 (see EN 15085-2).

**3.7  
national safety authority**

national government body responsible for setting or agreeing the safety requirements for a railway and ensuring that the railway complies with the laws and statutory regulations (see Annex A)

**3.8  
qualification**

evidence of training, professional knowledge, skill and experience to enable the personnel to perform the required tasks

**3.9  
qualified**

person with evidence of training, professional knowledge, skill and experience, proven by an internal test (e.g. personnel for VT according to EN 473, welders according to EN 287-1)

**3.10  
subcontracted welding coordinator**

welding coordinator not employed by the welding manufacturer



**3.11****joint static dimensioning**

defining the dimension of a welded joint that is needed to achieve the required static mechanical characteristics

**3.12****acceptance authority**

organisation that is responsible for the acceptance of the product

NOTE This organisation can be part of the customer's organisation or be an independent organisation appointed or approved by the customer.

**3.13****effective cross section**

cross-section of a welded joint that is considered when performing dimensioning calculations

**3.14****joint fatigue dimensioning**

defining the dimension of a welded joint that is needed to achieve the required fatigue characteristics

**3.15****stress category**

category determined by the stress factor

NOTE For more detailed information on stress categories low, medium, high: see EN 15085-3.

**3.16****stress factor**

ratio of the calculated fatigue stress to the admissible fatigue stress of the joint type, adjusted by the appropriate safety factor

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**3.17****admissible fatigue stress**

maximum stress applicable to materials to which a specific coefficient to the assembly to be welded is applied

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**3.18****safety category**

defines the consequences of failure of the single welded joint in respect to the effects on persons, facilities and the environment

NOTE For more detailed information on safety categories low, medium, high: see EN 15085-3.

**3.19****production weld test**

mock-up

sample welded joints to prove the manual skill of the welder or to demonstrate acceptable production of the welded joint