



**NSAI**  
Standards

Irish Standard  
I.S. EN 15085-3:2007

# Railway applications - Welding of railway vehicles and components - Part 3: Design requirements

## I.S. EN 15085-3:2007

*Incorporating amendments/corrigenda issued since publication:*

EN 15085-3:2007/AC:2009

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I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

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SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

*This document replaces:*

*This document is based on:*  
EN 15085-3:2007

*Published:*  
24 October, 2007

This document was published under the authority of the NSAI and comes into effect on:  
30 November, 2007

ICS number:  
25.160.10  
45.060.01

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English version  
Version Française  
Deutsche Fassung

Railway applications - Welding of railway vehicles and components - Part  
3: Design requirements

Applications ferroviaires - Soudage des  
véhicules et des composants ferroviaires -  
Partie 3 : Exigences de conception

Bahnanwendungen - Schweißen von  
Schienenfahrzeugen und -fahrzeugteilen -  
Teil 3: Konstruktionsvorgaben

This corrigendum becomes effective on 16 December 2009 for incorporation in the official English version of the EN.

Ce corrigendum prendra effet le 16 décembre 2009 pour incorporation dans la version anglaise officielle de la EN.

Die Berichtigung tritt am 16. Dezember 2009 zur Einarbeitung in die offizielle Englische Fassung der EN in Kraft.



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

**Management Centre: Avenue Marnix 17, B-1000 Brussels**

## **1 Modification to Annex B**

*Replace the last two pages of Table B.1 with the following ones (as the contents in the far right column are not entirely displayed in the English language version issued in 2007):*

"

No.	Marking	Figure	Symbol	Joint preparation sectional view	Symbolic drawing	Material thickness $t$ (mm)		Angle $a$		Gap $b$ (mm)		Thickness of root face $c$ (mm)		Depth of preparation $h$ (mm)		Design throat thickness $a_R$ (mm)
						Al <sup>a</sup>	Steel	Al <sup>a</sup>	Steel	Al <sup>a</sup>	Steel	Al <sup>a</sup>	Steel	Al <sup>a</sup>	Steel	
11b	HY weld with fillet weld as sealing run <sup>e</sup>					3 - 15	3 - 15	50 - 60	50 - 60	-	-	$\leq 0,2 t$	$\leq 0,2 t$	-	-	$a_R \leq h + a \leq t_1$
11c	HY weld with additional fillet weld					3 - 15	3 - 15	50 - 60	50 - 60	-	-	$\leq 0,2 t$	$\leq 0,2 t$	-	-	$a_R \leq h \leq t_1$ in special cases: $a_R \leq h + a \leq t_1$
12	Joint between three members					4 - 20	4 - 20	30 - 40	20 - 40	4 - 10	4 - 10	-	-	-	-	$a_R = b^f$ $a_R = t_2^g$
13a	Fillet weld					Al: $a_{min}$ 3 mm, $a_{max}$ 12 mm Steel: $a_{min}$ 2 mm, $a_{max}$ 12 mm										$a_R = a \leq 0,7 \times t_{min}$
13b	Double fillet weld					Al: $a_{min}$ 3 mm, $a_{max}$ 12 mm Steel: $a_{min}$ 2 mm, $a_{max}$ 12 mm										$a_R = a_1 + a_2 \leq t_{min}$ $a_{max} \leq 0,7 \times t_{min}$

I.S. EN 15085-3:2007

EN 15085-3:2007/AC:2009 (E)

No.	Marking	Figure	Symbol	Joint preparation sectional view	Symbolic drawing	Material thickness $t$ (mm)		Angle $a$		Gap $b$ (mm)		Thickness of root face $c$ (mm)		Depth of preparation $h$ (mm)		Design throat thickness $a_R$ (mm)
						Al <sup>a</sup>	Steel	Al <sup>a</sup>	Steel	Al <sup>a</sup>	Steel	Al <sup>a</sup>	Steel	Al <sup>a</sup>	Steel	
13c	Corner seam weld					$t_1 \geq 1$	$t_1 \geq 1$	-	-	-	-	-	-	-	-	$a_R = a \leq 0,7 \times t_2$ $t_2 \leq t_1$
13d	Corner seam weld					$t_2 \geq 3$	$t_2 \geq 3$	-	-	-	-	-	-	-	-	$a_R = a_1 + a_2 \leq t_2$ $a_1 \leq 0,7 \times t_2$ $t_2 \leq t_1$
13e	Lap seam weld					$t_2 \geq 1,5$ $t_1 \geq 3$	$t_2 \geq 1,5$ $t_1 \geq 2$	-	-	-	-	-	-	-	-	$a_R = a \leq 0,7 \times t_2$ $t_2 \leq t_1$

It is possible to depart from this weld preparation, if special welding processes (for example mechanized welding processes) are used and the required throat thickness is proved by a work specimen.

a Aluminium and aluminium alloys.  
 b M or MR (see EN 22553).  
 c Before welding the sealing run the root shall be grooved out.  
 d For HV weld without a sealing run there shall be steps by design, production and testing for a safe root fusion (test specimens).  
 e The sealing run serves to prevent gap corrosion.  
 f Force transmission from  $t_1$  to  $t_2$  and  $t_3$ ; the thicknesses  $t_2$  and  $t_3$  and the joint root opening  $b$  shall be additionally considered at the calculation.  
 g Force transmission from  $t_2$  to  $t_3$ .

ICS 25.160.10; 45.060.01

English Version

## Railway applications - Welding of railway vehicles and components - Part 3: Design requirements

Applications ferroviaires - Soudage des véhicules ferroviaires et des pièces - Partie 3 : Exigences de conception

Bahnanwendungen - Schweißen von Schienenfahrzeugen und -fahrzeugteilen - Teil 3: Konstruktionsvorgaben

This European Standard was approved by CEN on 26 August 2007.

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## Contents

Page

Foreword.....	5
Introduction .....	6
1 Scope .....	7
2 Normative references .....	7
3 Terms and definitions .....	8
4 Design requirements .....	8
4.1 General.....	8
4.2 Joint static dimensioning .....	8
4.3 Joint fatigue dimensioning .....	9
4.4 Stress categories and stress factors .....	9
4.5 Safety categories .....	10
4.6 Weld performance classes .....	10
4.7 Weld inspection classes .....	11
4.8 Relationship between stress category, safety category, weld performance class, quality levels for imperfections, inspection class and testing .....	12
5 Quality levels for imperfections .....	13
5.1 General.....	13
5.2 Quality levels for imperfections .....	13
6 Choice of parent metals and welding consumables .....	15
6.1 Choice of parent metals .....	15
6.2 Choice of welding consumables .....	15
7 Weld joint design .....	16
7.1 General.....	16
7.2 Welding in cold formed areas.....	16
7.3 Manufacturing provisions .....	17
7.4 Joint preparation.....	28
Annex A (informative) List of welded joints .....	29
Annex B (informative) Joint preparation of welds .....	30
Annex C (informative) Joint preparation for plug welds .....	38
Annex D (informative) Types of joints in relation to stresses and inspection classes.....	39
Annex E (informative) Welded joint validation chart .....	40
Annex F (normative) Resistance spot welding .....	41
F.1 General.....	41
F.2 Minimum shear pull forces .....	45
Annex G (informative) Determination of safety category for welded joints .....	47
Annex H (informative) Welding of 6000 series aluminium alloy extrusions – Recommendations from the Aljoin project for improved crashworthiness.....	48
Bibliography .....	49



## Figures

Figure 1 — Example of box girder with high stress level in the tension flange .....	17
Figure 2 — Butt joint on parts of dissimilar thickness .....	18
Figure 3 — Weldability access for plug and slot welds .....	19
Figure 4 — Dimensions for plug and slot welds .....	19
Figure 5 — Minimum distance between molten areas.....	20
Figure 6 — Stiffeners fitted perpendicularly to a longitudinal weld.....	20
Figure 7 — Filler and drain ports .....	20
Figure 8 — Design of gusset and stiffener ends.....	21
Figure 9 — Gusset shape .....	21
Figure 10 — Weld return .....	22
Figure 11 — Edge distance for fillet welds .....	22
Figure 12 — Minimum overlapping distance for overlapping welds.....	23
Figure 13 — Example of run-on and run-off plates for butt welds .....	23
Figure 14 — Clamped joints .....	24
Figure 15 — Mixed assemblies .....	25
Figure 16 — Corrosion locations.....	25
Figure 17 — Weld toe improvement .....	26
Figure 18 — Intermittent welds .....	28
Figure D.1 — Types of joints in relation to stresses and inspection classes .....	39
Figure F.1 — Resistance spot welding of angled profiles and plates.....	41
Figure F.2 — Resistance spot welding of plates, single row.....	42
Figure F.3 — Resistance spot welding of plates, double row .....	42
Figure F.4 — Resistance spot welding of plates, double row, offset.....	42

## Tables

Table 1 — Stress categories.....	10
Table 2 — Weld performance classes .....	11
Table 3 — Correspondence between weld performance classes and inspection classes.....	12
Table 4 — Relationship between stress category, safety category, weld performance class, quality levels for imperfections, inspection class and testing .....	12
Table 5 — Quality levels for imperfections for steel related to weld performance class .....	13
Table 6 — Quality levels for imperfections for aluminium and its alloys related to weld performance class .....	14
Table 7 — Quality levels for imperfections for laser and electron beam welding for steel related to the weld performance class .....	14
Table 8 — Quality levels for imperfections for laser and electron beam welding for aluminium and its alloys related to the weld performance class .....	15
Table 9 — Welding in cold formed areas (for steel).....	17

<b>Table B.1 — Joint preparations and throat thicknesses of welds .....</b>	<b>30</b>
<b>Table C.1 — Joint preparations and throat thicknesses of plug welds .....</b>	<b>38</b>
<b>Table F.1 — Spot spacing, distance from edge .....</b>	<b>41</b>
<b>Table F.2 — Quality requirements .....</b>	<b>43</b>
<b>Table F.3 — Surface quality .....</b>	<b>45</b>
<b>Table F.4 — Minimum shear pull forces for resistance spot welding joints of steel for weld performance classes CP C1, CP C2 and CP C3.....</b>	<b>46</b>
<b>Table F.5 — Minimum shear pull force for resistance spot welding joints of aluminium and alloys for the weld performance classes CP C1, CP C2 and CP C3 .....</b>	<b>46</b>

## **Foreword**

This document (EN 15085-3:2007) 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.

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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 is the basic technical welding standards in respect of the special requirements for the construction of railway vehicles.

This European Standard is aimed at defining the terms of enforcement applicable to European Standards; it is not construed as a substitute to these standards.

This European 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.

## 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 specifies design and classification rules applicable to the manufacture and maintenance of railway vehicles and their parts. Upon agreement with the customer, drawings issued prior to this European Standard may be subject to the provisions of this European Standard.

This European Standard does not define parameters for the dimensioning (refer to other standards e.g. on fatigue testing).

## 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 1011-2, *Welding — Recommendations for welding of metallic materials — Part 2: Arc welding of ferritic steels*

EN 1708-2, *Welding — Basic weld joint details in steel — Part 2: Non internal pressurized components*

EN 10025-2, *Hot rolled products of structural steels — Part 2: Technical delivery conditions for non-alloy structural steels*

EN 12663, *Railway applications — Structural requirements of railway vehicle bodies*

EN 13749, *Railway applications — Wheelsets and bogies — Methods of specifying structural requirements of bogie frames*

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

EN 15085-2:2007, *Railway applications — Welding of railway vehicles and components — Part 2: Quality requirements and certification of welding manufacturer*

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

EN 15085-5:2007, *Railway applications — Welding of railway vehicles and components — Part 5: Inspection, testing and documentation*

EN 22553, *Welded, brazed and soldered joints — Symbolic representation on drawings (ISO 2553:1992)*

EN ISO 4063, *Welding and allied processes — Nomenclature of processes and reference numbers (ISO 4063:1998)*

EN ISO 5817, *Welding — Fusion-welded joints in steel, nickel, titanium and their alloys (beam welding excluded) — Quality levels for imperfections (ISO 5817:2003)*

EN ISO 6520-1, *Welding and allied processes — Classification of geometric imperfections in metallic materials — Part 1: Fusion welding (ISO 6520-1:2007)*

EN ISO 6520-2, *Welding and allied processes — Classification of geometric imperfections in metallic materials — Part 2: Welding with pressure (ISO 6520-2:2001)*

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