SVENSK STANDARD
SS-EN 13230-3:2016

Fastställd/Approved: 2016-05-16
Publicerad/Published: 2016-05-18
Utgåva/Edition: 3
Språk/Language: engelska/English
ICS: 45.080; 91.100.30; 93.100

Järnvägar – Spår – Betongsliprar för spår och växlar – Del 3: Armerad tvåblockssliper

Railway applications – Track – Concrete sleepers and bearers – Part 3: Twin-block reinforced sleepers

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Europastandarden EN 13230-3:2016 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 13230-3:2016.

Denna standard ersätter SS-EN 13230-3:2009, utgåva 2.

The European Standard EN 13230-3:2016 has the status of a Swedish Standard. This document contains the official English version of EN 13230-3:2016.

This standard supersedes the Swedish Standard SS-EN 13230-3:2009, edition 2.

Upplysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00. Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna upplysningar om svensk och utländsk standard.

Information about the content of the standard is available from the Swedish Standards Institute (SIS), telephone +46 8 555 520 00. Standards may be ordered from SIS Förlag AB, who can also provide general information about Swedish and foreign standards.

Denna standard är framtagen av kommittén för Järnvägar, SIS/TK 254.

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på www.sis.se - där hittar du mer information.

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13230-3

May 2016

ICS 91.100.30; 93.100

Supersedes EN 13230-3:2009

English Version

Railway applications - Track - Concrete sleepers and bearers - Part 3: Twin-block reinforced sleepers

Applications ferroviaires - Voie - Traverses et supports en béton - Partie 3 : Traverses biblocs en béton armé

Bahnanwendungen - Oberbau - Gleis- und Weichenschwellen aus Beton - Teil 3: Bewehrte Zweiblockschwellen

This European Standard was approved by CEN on 4 March 2016.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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-CENELEC Management Centre has the same status as the official versions.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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Ref. No. EN 13230-3:2016 E

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European foreword

This document (EN 13230-3:2016) has been prepared by Technical Committee CEN/TC 256 “Railway applications”, the secretariat of which is held by DIN.

This document supersedes EN 13230-3:2009.

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 November 2016, and conflicting national standards shall be withdrawn at the latest by November 2016.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 2008/57/EC.

For relationship with EU Directive 2008/57/EC, see informative Annex ZA, which is an integral part of this document.

This European Standard is one of the EN 13230 series “*Railway applications – Track – Concrete sleepers and bearers*”, which consists of the following parts:

— Part 1: General requirements

— Part 2: Prestressed monoblock sleepers

— Part 3: Twin-block reinforced sleepers

— Part 4: Prestressed bearers for switches and crossings

— Part 5: Special elements

— Part 6: Design

There is a change in the wording of the documents of EN 13230 (series) “design bending moment” is replaced by “characteristic bending moment” and “test bending moment”.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This part of the EN 13230 series defines the specific requirements dedicated to twin-block reinforced sleepers.

These are additional requirements to EN 13230-1:2016 that are necessary to have a complete standard dealing with twin-block reinforced sleepers.

The document specifies the test arrangements and the test procedures to implement and also the corresponding acceptance criteria just as the design approval tests.

It also specifies the steel connecting bar characteristics and the design criteria for incorporating the steel connecting bar within the twin-block reinforced sleepers.

1 Scope

This part of the EN 13230 series defines technical criteria and control procedures for manufacturing and testing twin-block reinforced concrete sleepers.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 206, *Concrete - Specification, performance, production and conformity*

EN 13230-1:2016, *Railway applications – Track – Concrete sleepers and bearers – Part 1: General requirements*

prEN 13230-6:2015, *Railway applications – Track – Concrete sleepers and bearers – Part 6: Design*

EN ISO 6506-1, *Metallic materials - Brinell hardness test - Part 1: Test method (ISO 6506-1)*

EN ISO 6892-1, *Metallic materials - Tensile testing - Part 1: Method of test at room temperature (ISO 6892-1)*

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13230-1:2016 and the following apply.

3.1.1
steel connecting bar
steel profile which connects reinforced concrete blocks

3.2 Symbols

For the purposes of this document, the symbols listed in Table 1 apply.

Table 1 — Symbols

Symbol	Description	Unit
Fr_0	Positive initial reference test load for the rail seat section	kN
Fr_{0n}	Negative initial reference test load at rail seat section	kN
Fr_r	Positive test load which produces first crack formation at the bottom of the rail seat section	kN
Fr_{rn}	Negative test load which produces first crack formation at the top of rail seat	kN
$Fr_{0,05}$	Maximum test load for which a crack width of 0,05 mm at the bottom of the rail seat section persists after removal of the load	kN
$Fr_{0,05n}$	Maximum test load for which a crack width of 0,05 mm at the top of rail seat section persists after removal of the load	kN
$Fr_{0,5}$	Maximum test load for which a crack width of 0,5 mm at the bottom of the rail seat section persists after removal of the load	kN
Fr_B	Maximum positive test load at the rail seat section which cannot be increased	kN
Fr_{Bn}	Maximum negative test load on the top of rail seat section which cannot be increased	kN
Fr_u	Lower test load for the rail seat section dynamic test; Fr_u = 50 kN	kN
L_p	Design distance between the centre line of the rail seat to the edge of the sleeper at the bottom	m
L_r	Design distance between the articulated support centre lines for the test arrangement at the rail seat section	m
$M_{k,r,pos}$	Positive characteristic bending moment at rail seat, (see prEN 13230–6:2015)	kNm
k_{1s}	Static coefficient to be used for calculation of $Fr_{0,05}$ or $Fr_{0,05n}$ test load	-
k_{2s}	Static coefficient to be used for calculation of $Fr_{0,5}$ or Fr_B test load	-
k_{1d}	Dynamic coefficient to be used for calculation of $Fr_{0,05}$ test load	-
k_{2d}	Dynamic coefficient to be used for calculation of $Fr_{0,5}$ or Fr_B test load	-
he	Distance between bottom surface of the sleeper to steel connecting bar	m