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Railway applications - Track - Concrete sleepers and
bearers - Part 6: Design

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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English Version

Railway applications - Track - Concrete sleepers and bearers - Part 6: Design

Applications ferroviaires - Voie - Traverses et supports en béton - Partie 6 : Conception

Bahnanwendungen - Oberbau - Gleis- und Weichenschwellen aus Beton - Teil 6: Bemessung

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European foreword

This document (EN 13230-6:2020) 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of an identical text or by endorsement, at the latest by October 2020, and conflicting national standards shall be withdrawn at the latest by October 2020.

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

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 consist 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.*

This European Standard can be used as a technical basis between contracting parties (purchaser – supplier).

Annexes A and B are informative; they can be used as normative requirements by completion of a contract, if agreed by the contracting parties.

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, 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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This document covers the design of concrete sleepers and bearers and is used in conjunction with 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.*

Concrete sleepers and bearers are safety critical components for railway applications. They are not covered by any other European Standard.

As safety critical components, an agreement is needed between purchaser and supplier to operate a factory Quality System.

1 Scope

This document provides particular design guidance in the following areas:

- derivation of characteristic loads and test loads;
- calculation of characteristic and test bending moments.

The aim of this document is to give guidance for the preparation of all data to be given by the purchaser to the supplier in accordance with Parts 1 to 5 of EN 13230. It applies to gauges 1 000 mm, 1 435 mm, 1 668 mm as well as to all lengths of sleepers and bearers.

This document gives special criteria for the design of concrete sleepers and bearers as track components. The design methods in the Eurocode do not apply to these concrete elements.

All track parameters to be taken into account for the design of sleepers and bearers are detailed in this document. Information is given on these parameters so that they can be used as inputs for the design calculation process. It is the responsibility of the purchaser to calculate or determine all track parameters used in this document.

This document gives guidance for the design calculation process. It explains how experience and calculation can be combined to use design parameters.

This document gives examples of numerical data that can be used when applying Clauses 4 to 6 according to the state of the art.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 13146-3, *Railway applications – Track – Test methods for fastening systems – Part 3: Determination of attenuation of impact loads*

EN 13146-5, *Railway applications – Track – Test methods for fastening systems – Part 5: Determination of electrical resistance*

EN 13146-10, *Railway applications – Track – Test methods for fastening systems – Part 10: Proof load test for pull-out resistance*

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

3 Terms, definitions and symbols

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>