ICS 93.100 SLOVENSKÁ TECHNICKÁ NORMA Október 2022

STN	**Železnice Koľaj Požiadavky na vlastnosti systémov upevnenia Časť 2: Systémy upevnenia pre betónové podvaly v štrku**	**STN EN 13481-2 73 6370**

Railway applications - Track - Performance requirements for fastening systems - Part 2: Fastening systems for concrete sleepers in ballast

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 09/22

Obsahuje: EN 13481-2:2022

Oznámením tejto normy sa ruší
STN EN 13481-2+A1 (73 6370) z augusta 2017

135628

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13481-2

July 2022

ICS 93.100

Supersedes EN 13481-2:2012+A1:2017

English Version

Railway applications - Track - Performance requirements for fastening systems - Part 2: Fastening systems for concrete sleepers in ballast

Applications ferroviaires - Voie - Exigences de performance pour les systèmes de fixation - Partie 2 : Systèmes de fixation pour traverses en béton en voie ballastée

Bahnanwendungen - Oberbau - Leistungsanforderungen für Schienenbefestigungssysteme - Teil 2: Befestigungssysteme für Betonschwellen

This European Standard was approved by CEN on 8 May 2022.

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Ref. No. EN 13481-2:2022 E

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European foreword

This document (EN 13481-2:2022) 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of an identical text or by endorsement, at the latest by January 2023, and conflicting national standards shall be withdrawn at the latest by January 2023.

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 supersedes EN 13481-2:2012+A1:2017.

The main changes compared to the previous edition are as follows:

a) inclusion of tests for fastenings with very low stiffness;

b) changes to the loading conditions for Category B fastenings;

c) inclusion of details of in-service testing, replacing the reference to EN 13146-8, which is to be withdrawn;

d) editorial changes to make clear which requirements are based on laboratory testing.

This European Standard is one of the series EN 13481 “*Railway applications — Track — Performance requirements for fastening systems*”, which consists of the following parts:

— *Part 1: Definitions*

— *Part 2: Fastening systems for concrete sleepers in ballast*

— *Part 3: Fastening systems for wood and polymeric composite sleepers*

— *Part 4: Fastening systems for steel sleepers*

— *Part 5: Fastening systems for ballastless tracks*

— *Part 7: Fastening systems for switches and crossings, check rails, insulated rail joints and rail expansion devices*

NOTE Part 6 does not exist in this series.

These European Standards are supported by the test methods in the series EN 13146 “*Railway applications — Track — Test methods for fastening systems*”.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For relationship with EU Directive(s) / Regulation(s), see informative Annex ZA, which is an integral part of this document.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

A series of tests is used to assess the suitability of fastening systems for use in railway track, i.e. for type approval of complete fastening systems. This document only sets requirements considered relevant to ensure the safe, long-term operation of the track system. The test methods are described in other associated standards.

The various Categories of rail fastenings used in this document are defined in EN 13481-1:2012.

1 Scope

This document is applicable to fastening systems in Categories A – E as specified in EN 13481-1:2012, 3.1 for use on concrete sleepers in ballasted track with maximum axle loads and minimum curve radii as shown in Table 1.

Table 1 — Fastening category criteria

Category	Maximum design axle load kN	Minimum curve radius m
A	130	40
B	180	80
C	260	150
D	260	400
E	350	150
NOTE The maximum axle load for Categories A and B does not apply to maintenance vehicles.		

The requirements apply to:

— fastening systems which act on the foot and/or web of the rail including direct fastening systems and indirect fastening systems;

— fastening systems for rail sections included in EN 13674-1 (excluding 49E4) or EN 13674-4.

This document is not applicable to fastening systems for other rail sections, rigid fastening systems or special fastening systems used at bolted joints or glued joints.

This document is for the type approval of complete fastening systems.

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 13146-1:2019, *Railway applications — Track — Test methods for fastening systems — Part 1: Determination of longitudinal rail restraint*

EN 13146-2:2012, *Railway applications — Track — Test methods for fastening systems — Part 2: Determination of torsional resistance*

EN 13146-3:2012, *Railway applications — Track — Test methods for fastening systems — Part 3: Determination of attenuation of impact loads*

EN 13146-4:2020, *Railway applications — Track — Test methods for fastening systems — Part 4: Effect of repeated loading*

EN 13146-5:2012[1], *Railway applications — Track — Test methods for fastening systems — Part 5: Determination of electrical resistance*

EN 13146-6:2012, *Railway applications — Track — Test methods for fastening systems — Part 6: Effect of severe environmental conditions*

EN 13146-7:2019, *Railway applications — Track — Test methods for fastening systems — Part 7: Determination of clamping force and uplift stiffness*

EN 13146-9:2020, *Railway applications — Track — Test methods for fastening systems — Part 9: Determination of stiffness*

EN 13146-10:2017, *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*

EN 13481-1:2012, *Railway applications — Track — Performance requirements for fastening systems — Part 1: Definitions*

EN 13674-1:2011+A1:2017, *Railway applications — Track — Rail — Part 1: Vignole railway rails 46 kg/m and above*

EN 13674-4:2019, *Railway applications — Track — Rail — Part 4: Vignole railway rails from 27 kg/m to, but excluding 46 kg/m*

EN 17343:2020, *Railway applications — General terms and definitions*

[1] As impacted by EN 13146-5:2012/AC:2017.