Railway applications - Track - Test methods for fastening systems - Part 4: Effect of repeated loading

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NATIONAL FOREWORD

See Eesti standard EVS-EN 13146-4:2012+A1:2014 sisaldab Euroopa standardi EN 13146-4:2012+A1:2014 inglisekeelset teksti.	This Estonian standard EVS-EN 13146-4:2012+A1:2014 consists of the English text of the European standard EN 13146-4:2012+A1:2014.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 05.11.2014.	Date of Availability of the European standard is 05.11.2014.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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EUROPEAN STANDARD

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English Version

Railway applications - Track - Test methods for fastening systems - Part 4: Effect of repeated loading

Applications ferroviaires - Voie - Méthodes d'essai pour les systèmes de fixation - Partie 4: Effets produits par des charges répétitives

Bahnanwendungen - Oberbau - Prüfverfahren für Schienenbefestigungssysteme - Teil 4: Dauerschwingversuch

This European Standard was approved by CEN on 26 November 2011 and includes Amendment 1 approved by CEN on 25 September 2014.

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

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Foreword

This document (EN 13146-4:2012+A1:2014) 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of an identical text or by endorsement, at the latest by May 2015, and conflicting national standards shall be withdrawn at the latest by May 2015.

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.

This document supersedes ▌A1⟩ EN 13146-4:2002 ⟨A1▐.

This document includes Amendment 1 approved by CEN on 2014-09-25.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ▌A1⟩ ⟨A1▐.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

In this revision of EN 13146-4:2002 the procedure has been modified for application to embedded rail.

This European Standard is one of the series EN 13146 "*Railway applications — Track — Test methods for fastening systems*" which consists of the following parts:

— *Part 1: Determination of longitudinal rail restraint;*

— *Part 2: Determination of torsional resistance;*

— *Part 3: Determination of attenuation of impact loads;*

— *Part 4: Effect of repeated loading;*

— *Part 5: Determination of electrical resistance;*

— *Part 6: Effect of severe environmental conditions;*

— *Part 7: Determination of clamping force;*

— *Part 8: In service testing;*

— *Part 9: Determination of stiffness.*

These support the requirements in the series EN 13481 "*Railway applications — Track — Performance requirements for fastening systems*".

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

1 Scope

This European Standard specifies a laboratory test procedure for applying repeated displacement cycles representative of the displacements caused by traffic on railway track. It is used for assessing the long term performance of direct fastening systems.

The procedure is applicable to surface mounted rail on sleepers, bearers and slab track, and embedded rail.

This test procedure applies to a complete fastening assembly.

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.

〚A1〛 EN 13146-1:2012+A1:2014 〚A1〛, *Railway applications — Track — Test methods for fastening systems — Part 1: Determination of longitudinal rail restraint*

EN 13146-7:2012, *Railway applications — Track — Test methods for fastening systems — Part 7: Determination of clamping force*

EN 13146-9:2009, *Railway applications — Track — Test methods for fastening systems — Part 9: Determination of stiffness*

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

EN 13481-2:2012, *Railway applications — Track — Performance requirements for fastening systems — Part 2: Fastening systems for concrete sleepers*

EN 13481-3:2012, *Railway applications — Track — Performance requirements for fastening systems — Part 3: Fastening systems for wood sleepers*

EN 13481-4:2012, *Railway applications — Track — Performance requirements for fastening systems — Part 4: Fastening systems for steel sleepers*

EN 13481-5:2012, *Railway applications — Track — Performance requirements for fastening systems — Part 5: Fastening systems for slab track with rail on the surface or rail embedded in a channel*

EN 13481-7:2012, *Railway applications — Track — Performance requirements for fastening systems — Part 7: Special fastening systems for switches and crossings and check rails*

EN ISO 7500-1:2004, *Metallic materials — Verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Verification and calibration of the force-measuring system (ISO 7500-1:2004)*

EN ISO 9513:2002, *Metallic materials — Calibration of extensometers used in uniaxial testing (ISO 9513:1999)*