

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

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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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 24 February 2020.

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European foreword

This document (EN 13146-4:2020) 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of an identical text or by endorsement, at the latest by October 2020, and conflicting national standards shall be withdrawn at the latest by October 2020.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 supersedes EN 13146-4:2012+A1:2014.

In this revision of EN 13146-4:2012+A1:2014, the procedure has been modified to clarify the detail of some of the test procedures.

This document 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 and uplift stiffness;*
- *Part 8: In-service testing;*
- *Part 9: Determination of stiffness;*
- *Part 10: Proof load test for pull-out resistance.*

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1 Scope

This document 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 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 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, *Railway applications — Track — Test methods for fastening systems — Part 1: Determination of longitudinal rail restraint*

EN 13146-7, *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 13481-1:2012, *Railway applications — Track — Performance requirements for fastening systems — Part 1: Definitions*

EN ISO 7500-1:2018, *Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and verification of the force-measuring system (ISO 7500-1:2018)*

EN ISO 9513:2012, *Metallic materials — Calibration of extensometer systems used in uniaxial testing (ISO 9513:2012)*

3 Terms, definitions, symbols and abbreviations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13481-1:2012 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 <https://www.iso.org/obp/ui>