

**Railway applications - Track - Test methods for  
fastening systems - Part 2: Determination of torsional  
resistance**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 13146-2:2012 sisaldab Euroopa standardi EN 13146-2:2012 ingliskeelset teksti.	This Estonian standard EVS-EN 13146-2:2012 consists of the English text of the European standard EN 13146-2:2012.
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 04.04.2012.	Date of Availability of the European standard is 04.04.2012.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

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English Version

## Railway applications - Track - Test methods for fastening systems - Part 2: Determination of torsional resistance

Applications ferroviaires - Voie - Méthodes d'essai pour les systèmes de fixation - Partie 2: Détermination du couple d'encastrement

Bahnanwendungen - Oberbau - Prüfverfahren für Schienenbefestigungssysteme - Teil 2: Ermittlung des Verdrehwiderstandes

This European Standard was approved by CEN on 26 November 2011.

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## Foreword

This document (EN 13146-2:2012) 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of an identical text or by endorsement, at the latest by October 2012, and conflicting national standards shall be withdrawn at the latest by October 2012.

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 EN 13146-2:2002.

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

Detailed changes only have been made in this revision of EN 13146-2:2002. The procedure is not applicable 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, 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 to determine the moment necessary to rotate a rail, secured to a sleeper by a rail fastening assembly, through  $1^\circ$  in a plane parallel to the base of the rail. The value obtained can be used in track stability calculations.

The test is not applicable to embedded rails.

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.

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

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)*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13481-1:2012 apply.

## 4 Principle

A transverse load is applied to the foot of a rail fixed to a single rail seat of a sleeper whilst the sleeper is restrained. Movement of the rail relative to the sleeper is recorded and the load increased until the rail has rotated through a minimum of  $1,5^\circ$ . The moment to cause a displacement of  $1^\circ$  is then determined from a plot of moment of load against displacement.

## 5 Apparatus

### 5.1 Rail

A short length of rail of the section for which the fastening assembly under test is designed. The rail shall be unlaminated and have neither loose rust on the surface nor be polished on the foot by repeated testing.

### 5.2 Actuator

Actuator capable of applying a force, of at least 25 kN, to the edge of the foot of the rail, normal to the rail and parallel to the plane of the foot of the rail, at a controlled rate of  $(2 \pm 1)$  kN/min as shown in Figure 1.