

Railway applications - Infrastructure - Resilient  
element for floating slab system

## EESTI STANDARDI EESSÕNA

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English Version

## Railway applications - Infrastructure - Resilient element for floating slab system

Applications ferroviaires - Infrastructure - Élément  
élastique pour système de dalle flottante (REFS)

Bahnanwendungen - Infrastruktur - Elastisches  
Element für Unterbodenmattensystem

This European Standard was approved by CEN on 30 October 2022.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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## European foreword

This document (EN 17682:2022) 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of an identical text or by endorsement, at the latest by June 2023 and conflicting national standards shall be withdrawn at the latest by June 2023.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.

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.

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## Introduction

In a track for railway vehicles, the Resilient Element for Floating Slab (REFS) is a product which is placed between the substructure and the ballastless track. This document applies to the performance-related properties of this element.

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## 1 Scope

This document is applicable to resilient elements for floating slab system (REFS) – elements used in floating slab and defines the test procedures and their acceptance criteria.

The document covers not only those parameters related to the effectiveness of a track structure in mitigating vibrations, that is, to reduce the emission of vibrations and structure-borne noise, but also the parameters that are needed for the static analysis and for the verification of track safety.

Floating slab track systems in the form of track base plates and track troughs are individual solutions in which there is considerable variation in the engineering design and the types of resilient elements used. For this reason, a floating slab track system is always an individual engineering solution and therefore, it is not possible to define all specific conditions for the resilient elements in this document.

The most typical types of resilient elements are:

- full surface bearings;
- strip bearings;
- discrete bearings (including the helical steel spring element);
- vertical bearings.

This document provides particular information in the following areas:

- test methods, test arrangements and acceptance criteria;
- data supplied by the purchaser and by the supplier;
- definition of general process of design approval tests;
- definition of routine tests.

This document defines the specific test procedures for REFS:

- stiffness tests;
- fatigue tests;
- severe environmental condition test.

This document also sets out procedures for testing fitness for purpose and provides information on quality monitoring as part of quality assurance procedures. This document does not, however, contain requirements pertaining to the functions of Resilient Element for Floating Slab system. It is the responsibility of the purchaser to define these requirements and to choose the optional tests.

This document is not applicable for fastening system and for booted concrete block and sleeper completed with boots covered by EN 13481-5.



## 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 ISO 527 (all parts), *Plastics - Determination of tensile properties (ISO 527 (all parts))*

EN ISO 1798, *Flexible cellular polymeric materials - Determination of tensile strength and elongation at break (ISO 1798)*

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)*

ISO 37, *Rubber, vulcanized or thermoplastic - Determination of tensile stress-strain properties*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

### 3.1

#### **floating slab system**

track system where a designed elasticity by a resilient element is introduced between the ballastless track system or trough slab and its substructure

### 3.2

#### **resilient element for floating slab system**

##### **REFS**

product of resilient material installed in the floating slab system including all integral parts of the product in order to mitigate vibrations

### 3.3

#### **full surface bearing**

resilient element arranged as a mat in between the floating slab and its substructure to provide continuous elastic support of the floating slab

### 3.4

#### **strip bearing**

resilient element arranged as a strip in between the floating slab and its substructure to provide continuous longitudinal elastic support of the floating slab. Continuous means any longitudinal gap between 2 strips is less than 10 % of one strip length, and not larger than strip width, except where larger gaps are needed for construction requirements such as drainage