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PAIKSETELE NING LIIKUVATELE TÖÖKOHTADELE

Railway applications - Track - Safety protection on the  
track during work - Part 1: Railway risks and common  
principles for protection of fixed and mobile work sites

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 16704-1:2016 sisaldab Euroopa standardi EN 16704-1:2016 ingliskeelset teksti.	This Estonian standard EVS-EN 16704-1:2016 consists of the English text of the European standard EN 16704-1:2016.
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English Version

## Railway applications - Track - Safety protection on the track during work - Part 1: Railway risks and common principles for protection of fixed and mobile work sites

Applications ferroviaires - Voie - Protection et sécurité  
durant des travaux sur la voie - Partie 1: Risques  
ferroviaires et principes communs de protection des  
chantiers fixes et mobiles

Bahnanwendungen - Oberbau - Sicherungsmaßnahmen  
während Gleisbauarbeiten - Teil 1:  
Eisenbahngefährdungen und allgemeine Prinzipien  
zum Schutz ortsfester und ortsveränderlicher  
Baustellen

This European Standard was approved by CEN on 10 September 2016.

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## European foreword

This document (EN 16704-1:2016) 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of an identical text or by endorsement, at the latest by June 2017, and conflicting national standards shall be withdrawn at the latest by June 2017.

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

The purpose of this standard is to define a common approach to the safety of workers regarding the railway risks in relation to work on or in proximity of the track in the European Community.

National safety rules (for example national standards or company rules) should gradually be harmonized in line with this standard or be replaced by rules contained in this standard but according to directive 89/391/EEC it is not allowed to reduce the existing level of safety measures given by national safety rules. The current situation, in which, national safety rules continue to play a role, should be regarded as a transitional stage, leading ultimately to a situation in which, European rules described here after, will apply.

This European Standard is one of the series EN 16704 "Railway applications – Track – Safety protection on the track during work" as listed below:

- *Part 1: Railway risks and common principles for protection of fixed and mobile work sites*
- *Part 2-1: Common solutions and technology – Technical requirements for Track Warning Systems (TWS)*
- *Part 2-2: Common solutions and technology – Technical requirements for barriers*
- *Part 3: Competences of personnel related to work on or near the railway track*

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 provides requirements and measures to deal with the significant and specific railway risks during works on or in proximity of the track and with common principles for the protection of fixed and mobile work sites with trains and/or machines circulating on the working track and trains circulating on the adjacent track(s). Railway risks and protection measures for access and egress to/from the work site are considered in the same way as railway risks and protection measures for work itself.

This European Standard is applicable to all operations related to work activities on rail guided systems. Infrastructure of metro, tram and other light rail systems is excluded from the scope<sup>1)</sup>.

The following specific railway risks are taken into consideration:

- Risk 1: Personnel being struck by a train or injured due to wind drag from a train on open working track (safety of the worker);

NOTE 1 Risk 1 includes injuring of a worker by machines, material or equipment being struck by a train on the working track.

- Risk 2: Personnel being struck by a train or injured due to wind drag from train on adjacent track (safety of the worker);
- Risk 3: Personnel being struck by machine or train on blocked track (safety of the worker);
- Risk 4: Machines, material or equipment being struck by a train on the adjacent track (safety of the operation/safety of the worker);
- Risk 5: Personnel being electrified or electrocuted by fixed electrical equipment (safety of the worker).

NOTE 2 Risk 5 includes hazards caused by pantographs of passing trains.

This European Standard also provides requirements to the process of installing basic preventive measures when planning new infrastructure or installing corrective measures when adapting existing infrastructure.

This European Standard may be extended to third parties when it is considered appropriate and reasonable by the infrastructure manager, if one or more of the five significant risks described inside this standard, arise as a result of their activities in proximity of the track.

## 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.

FprEN 14033-2:2016, *Railway applications – Track – Railbound construction and maintenance machines – Part 2: Technical requirements for working*

FprEN 14033-3:2016, *Railway applications – Track – Railbound construction and maintenance machines – Part 3: General safety requirements*

EN 15746-2, *Railway applications – Track – Road-rail machines and associated equipment – Part 2: General safety requirements*

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<sup>1)</sup> See Directive 2008/57/EC.

EN 15955-1, *Railway applications - Track - Demountable machines and associated equipment - Part 1: Technical requirements for running and working*

EN 15955-2, *Railway applications - Track - Demountable machines and associated equipment - Part 2: General safety requirements*

EN 16704-2-1:2016, *Railway applications – Track – Safety protection on the track during work – Part 2-1: Common solutions and technologies – Technical requirements for Track Warning Systems (TWS)*

EN 16704-2-2:2016, *Railway applications – Track – Safety protection on the track during work – Part 2-2: Common solutions and technologies – Technical requirements for barriers*

EN 16704-3:2016, *Railway applications – Track – Safety protection on the track during work – Part 3: Competences of personnel related to work on or near the railway track*

EN 50122-1:2011, *Railway applications - Fixed installations - Electrical safety, earthing and the return circuit - Part 1: Protective provisions against electric shock*

EN 50110-1:2013, *Operation of electrical installations - Part 1: General requirements*

EN 50126-1:1999, *Railway applications - The specification and demonstration of Reliability, Availability, Maintainability and Safety (RAMS) - Part 1: Basic requirements and generic process*

EN ISO 20345, *Personal protective equipment - Safety footwear (ISO 20345)*

EN ISO 20471:2013, *High visibility clothing - Test methods and requirements (ISO 20471:2013)*

### **3 Terms and definitions**

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

#### **3.1**

##### **accident**

unplanned, uncontrolled event giving rise to death, ill health, injury or other loss to persons or damage to material

#### **3.2**

##### **adjacent track**

track beside the working track or beside the working place where it is possible to get into the danger zone during work

Note 1 to entry: The actual work takes place on the working track/work site near an open track and is not planned to take place in the danger zone of the adjacent track, or the presence of the person in the danger zone of the adjacent track is not intended.

#### **3.3**

##### **announcement time**

period between the moment the warning starts and the moment a train passes the beginning of the work site

#### **3.4**

##### **announcement distance**

distance between the point of detection of the train and the beginning of the work site