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Railway applications - Track - Safety protection on the
track during work - Part 2-2: Common solutions and
technology - Requirements for barriers

EESTI STANDARDI EESSÕNA

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English Version

**Railway applications - Track - Safety protection on the
track during work - Part 2-2: Common solutions and
technology - Requirements for barriers**

Applications ferroviaires - Voie - Protection et sécurité
durant des travaux sur la voie - Partie 2-2: Solutions
communes et technologie - Exigences relatives aux
barrières

Bahnanwendungen - Oberbau - Sicherungsmaßnahmen
während Gleisbauarbeiten - Teil 2-2: Allgemeine
Lösungen und Technologie - Anforderungen an
Absperrungen

This European Standard was approved by CEN on 6 August 2016.

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European foreword

This document (EN 16704-2-2:2016) 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of an identical text or by endorsement, at the latest by May 2017, and conflicting national standards shall be withdrawn at the latest by May 2017.

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.

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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 tracks*

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Introduction

The purpose of this standard is to define and harmonize requirements for barriers to separate working zone and danger zone and to prevent workers from entering the danger zone unintentionally.

The purpose of this standard is not to define requirements:

- for structural separation to provide safe train operation in the area of a work site(1);
- for structural separation to provide safety on a work site during train operation(2).

NOTE Examples for exclusions:

(1) In case of crane operation on a work site the crane arm could hit or even intrude into the gauge of an open track and endanger the safety of train operation.

(2) A barrier does not protect workers from items falling from passing trains.

1 Scope

This European Standard deals with requirements for barriers to give users the possibility to prevent workers from entering the danger zone unintentionally by the use of such barriers.

This standard defines minimum requirements and test procedures for these barriers concerning the dimensions, the stability and electrical properties.

This standard also gives recommendations for the marking (visual demarcation line) where a person would enter the danger zone.

For combinations of barriers and TWS see also EN 16704-2-1:2016.

This standard contains references to electrical hazards from third rail systems.

NOTE Urban rail systems do have the same situations but may have other individual track gauges. EN 16704-1 does not cover Urban rail systems. The use of barriers as a safety measure has the same intention independently of the kind of railway system.

This standard in particular does not deal with:

- risk assessment for safety protection on the track during work;
- hierarchy of safety measure for safety protection on the track during work;
- safety measure to provide safe working and safe train operation in the area of a work site;
- national safety regulations to plan and operate barriers in track;
- safety regulations and additional requirements e.g. due to national or operational rules or negotiation between the user and the manufacturer;
- electrical hazards by different potential of different electrified circuits.

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 364:1992, *Personal protective equipment against falls from a height - Test methods*

EN 1263-1, *Temporary works equipment - Safety nets - Part 1: Safety requirements, test methods*

EN 12811-2, *Temporary works equipment - Part 2: Information on materials*

EN 12811-3:2002, *Temporary works equipment - Part 3: Load testing*

EN 13374:2013, *Temporary edge protection systems - Product specification - Test methods*

EN 14067-4, *Railway applications - Aerodynamics - Part 4: Requirements and test procedures for aerodynamics on open track*

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

EN 50110-2, *Operation of electrical installations - Part 2: National annexes*

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

EN 50122-2, *Railway applications - Fixed installations - Electrical safety, earthing and the return circuit - Part 2: Provisions against the effects of stray currents caused by d.c. traction systems*

EN 50122-3, *Railway applications - Fixed installations - Electrical safety, earthing and the return circuit - Part 3: Mutual Interaction of a.c. and d.c. traction systems*

EN 50125-3:2003, *Railway applications - Environmental conditions for equipment - Part 3: Equipment for signalling and telecommunications*

EN ISO 13857, *Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857)*

3 Terms and definitions

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

**3.1
danger zone**
area where a person, material or equipment can be struck by a railway vehicle or exposed to injury or fatality due to wind drag

**3.2
separation**
method to keep apart the working zone and the danger zone of the adjacent track/operational track and to prevent workers from entering unintentionally into the danger zone

Note 1 to entry: Measures of separation are barriers, (steel) walls, work wagons, etc.

**3.3
visible separation**
marking of the beginning of the danger zone by visual demarcation lines e.g. by bands

**3.4
preventive separation**
separation that prevents unintentional entering of workers into the danger zone e.g. by a barrier

**3.5
barrier**
common technical solution to realize preventive separation by a set of components to separate working zone and danger zone and to prevent workers from entering the danger zone unintentionally

**3.6
marking/visual demarcation line**
common technical solution to achieve limited separation by marking (visual demarcation line) of where a person would enter the danger zone

Note 1 to entry Separation by marking (visual demarcation line) is not an autonomous and independent measure for safety protection on the track during work (see Clause 8).