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**Railway applications - Rolling stock - Rules for
installation of cabling**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 50343:2014 sisaldab Euroopa standardi EN 50343:2014 inglisekeelset teksti.	This Estonian standard EVS-EN 50343:2014 consists of the English text of the European standard EN 50343:2014.
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.
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English Version

**Railway applications - Rolling stock - Rules for installation of
cabling**

Applications ferroviaires - Matériel roulant - Règles
d'installation du câblage

Bahnanwendungen - Fahrzeuge - Regeln für die Installation
von elektrischen Leitungen

This European Standard was approved by CENELEC on 2014-01-27. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 50343:2014) has been prepared by CLC/SC 9XB "Electromechanical material on board rolling stock".

The following dates are fixed:

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| • latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement | (dop) | 2015-01-27 |
| • latest date by which the national standards conflicting with this document have to be withdrawn | (dow) | 2017-01-27 |

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This document supersedes EN 50343:2003.

EN 50343:2014 includes the following significant technical changes with respect to EN 50343:2003:

- references to other standards updated and harmonized;
- factor k_5 concerning sizing of multi core cables introduced;
- factor k_2 detailed, see Table 2;
- short time current detailed;
- mechanical aspects detailed;
- separation of cables due to safety reasons and EMC reasons harmonized;
- details added and changed concerning electrical and mechanical requirements for electrical terminations;
- cable lifetime considerations updated.

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

1 Scope

This European Standard specifies requirements for the installation of cabling on railway vehicles and within electrical enclosures on railway vehicles, including magnetic levitation trains and trolley buses.

NOTE With respect to trolley buses, this European Standard applies to the whole electric traction system, including current collecting circuits, power converters and the respective control circuits. The installation of other circuits is covered by street vehicle standards for example those for combustion driven buses.

This European Standard covers cabling for making electrical connections between items of electrical equipment, including cables, busbars, terminals and plug/socket devices. It does not cover special effect conductors like fibre optic cables or hollow conductors (waveguides).

The material selection criteria given here are applicable to cables with copper conductors.

This European Standard is not applicable to the following:

- special purpose vehicles, such as track-laying machines, ballast cleaners and personnel carriers;
- vehicles used for entertainment on fairgrounds;
- vehicles used in mining;
- electric cars;
- funicular railways.

As the field of cabling in rolling stock is also dealt with in the cable makers' standard, references are made to EN 50264 series, EN 50306 series, EN 50382 series and EN 50355.

This European Standard applies in conjunction with the relevant product and installation standards. Stricter requirements than those given in this European Standard may be necessary.

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 45545 (all parts), *Railway applications – Fire protection on railway vehicles*

EN 45545-1, *Railway applications – Fire protection on railway vehicles – Part 1: General*

EN 45545-2, *Railway applications – Fire protection on railway vehicles – Part 2: Requirements for fire behaviour of materials and components*

EN 45545-3 *Railway applications - Fire protection on railway vehicles - Part 3: Fire resistance requirements for fire barriers*

EN 45545-5, *Railway applications – Fire protection on railway vehicles – Part 5: Fire safety requirements for electrical equipment including that of trolley buses, track guided buses and magnetic levitation vehicles*

EN 50121-3-1, *Railway applications – Electromagnetic compatibility – Part 3-1: Rolling stock – Train and complete vehicle*

EN 50121-3-2, *Railway applications – Electromagnetic compatibility – Part 3-2: Rolling stock – Apparatus*

EN 50124-1, *Railway applications – Insulation coordination – Part 1: Basic requirements – Clearances and creepage distances for all electrical and electronic equipment*

EN 50125-1, *Railway applications – Environmental conditions for equipment – Part 1: Equipment on board rolling stock*

EN 50153, *Railway applications – Rolling stock – Protective provisions relating to electrical hazards*

EN 50200, *Method of test for resistance to fire of unprotected small cables for use in emergency circuits*

EN 50215:2009, *Railway applications – Rolling stock – Testing of rolling stock on completion of construction and before entry into service*

EN 50264 (all parts), *Railway applications – Railway rolling stock power and control cables having special fire performance*

EN 50306 (all parts), *Railway applications – Railway rolling stock cables having special fire performance – Thin wall*

EN 50306-2, *Railway applications – Railway rolling stock cables having special fire performance – Thin wall – Part 2: Single core cables*

EN 50355:2013, *Railway applications - Railway rolling stock cables having special fire performance - Guide to use*

EN 50362, *Method of test for resistance to fire of larger unprotected power and control cables for use in emergency circuits*

EN 50382 (all parts), *Railway applications – Railway rolling stock high temperature power cables having special fire performance*

EN 50467, *Railway applications – Rolling stock – Electrical connectors, requirements and test methods*

EN 50553, *Railway applications – Requirements for running capability in case of fire on board of rolling stock*

EN 60228, *Conductors of insulated cables (IEC 60228)*

EN 60423, *Conduit systems for cable management - Outside diameters of conduits for electrical installations and threads for conduits and fittings (IEC 60423)*

EN 60684-3-212, *Flexible insulating sleeving – Part 3: Specifications for individual types of sleeving – Sheet 212: Heat-shrinkable polyolefin sleeveings (IEC 60684-3-212)*

EN 60684-3-216, *Flexible insulating sleeving – Part 3: Specifications for individual types of sleeving – Sheet 216: Heat-shrinkable, flame-retarded, limited-fire hazard sleeving (IEC 60684-3-216)*

EN 60684-3-271, *Flexible insulating sleeving – Part 3: Specifications for individual types of sleeving – Sheet 271: Heat-shrinkable elastomer sleeveings, flame retarded, fluid resistant, shrink ratio 2:1 (IEC 60684-3-271)*

EN 61180-1, *High-voltage test techniques for low-voltage equipment – Part 1: Definitions, test and procedure requirements (IEC 61180-1)*

EN 61386-1, *Conduit systems for cable management - Part 1: General requirements (IEC 61386-1)*

EN 61310-2, *Safety of machinery – Indication, marking and actuation – Part 2: Requirements for marking (IEC 61310-2)*

HD 60364-5-54:2011, *Low-voltage electrical installations – Part 5-54: Selection and erection of electrical equipment – Earthing arrangements and protective conductors (IEC 60364-5-54:2011)*