

**Railway applications - Railway rolling stock cables  
having special fire performance - Guide to use**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

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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 -  
Railway rolling stock cables having special fire performance -  
Guide to use**

Applications ferroviaires -  
Câbles à comportement au feu spécifié  
pour matériel roulant ferroviaire -  
Guide d'emploi

Bahnanwendungen -  
Kabel und Leitungen für  
Schienenfahrzeuge mit verbessertem  
Verhalten im Brandfall -  
Leitfaden für die Verwendung

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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 50355:2013) has been prepared by CLC/TC 20 "Electric cables" by Working Group 12 "Railway cables" as part of the overall programme of work in the Technical Committee CENELEC TC 9X "Electrical and electronic applications for railways".

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2014-07-01
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2016-07-01

This document supersedes EN 50355:2003.

EN 50355:2013 includes the following significant technical changes with respect to EN 50355:2003:

- requirements for additional cable type: EN 50264-3-1, EN 50264-3-2 and EN 50382-2;
- modified voltage table.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

## Introduction

The railway industry is generally concerned with the movement of people as well as goods. It is therefore essential that safety is achieved, even when failures occur which may involve fire, however caused, affecting railway rolling stock.

Hence it is necessary to provide cables for use in railway environments which minimise the hazard to people when a fire may damage the cable, irrespective of whether the fire is caused by an external source or from within the electrical system.

The aims of this European Standard are to:

- inform railway vehicle manufacturers, installers of cables and railway operators of the properties and limiting conditions of rolling stock cables in order to safeguard life and equipment;
- avoid misuse of rolling stock cables.

The information is given as limiting values and illustrated by examples which cannot be exhaustive but nevertheless indicate ways by which safety (a tolerable level of risk) can be obtained.

It has been assumed in the preparation of this guidance document that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

This European Standard should be used in conjunction with:

- EN 50264 series, *Railway applications — Railway rolling stock power and control cables having special fire performance*
- EN 50306 series, *Railway applications — Railway rolling stock cables having special fire performance — Thin wall*
- EN 50382 series, *Railway applications — Railway rolling stock high temperature power cables having special fire performance*
- EN 50343, *Railway applications — Rolling stock — Rules for installation of cabling*

## 1 Scope

This European Standard gives guidance on the safe use of rolling stock cables specified in EN 50264, EN 50306 and EN 50382. These cables will only be used for the wiring of railway rolling stock and within the limits given in the manner described in this European Standard. All these cables are for fixed installation where there is no free movement of cable, except for stresses due to typical service.

This European Standard will be applied in conjunction with the relevant product and installation standards. Stricter requirements than those given in this standard could be necessary; see in particular EN 50343.

This European Standard is not applicable to:

- intercarriage jumpers;
- cables subject to continual flexing;
- pantograph cables;
- coaxial, data and fibre optic cables;
- wire wrap;
- cables rated at voltages greater than 3,6/6 kV;
- applications other than the cabling of railway rolling stock;
- cables requiring circuit integrity.

Legal or statutory requirements do take precedence over the guidance given in this document.

In cases where no guidance exists or where it cannot be derived from general information, it is recommended that advice be sought from the cable manufacturer.

## 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 50121-1	<i>Railway applications — Electromagnetic compatibility — Part 1: General</i>
EN 50125-1	<i>Railway applications – Environmental conditions for equipment — Part 1: Equipment on board rolling stock</i>
EN 50163	<i>Railway Applications — Supply voltages of traction systems</i>
EN 50200	<i>Method of test for resistance to fire of unprotected small cables for use in emergency circuits</i>
EN 50264-2-1	<i>Railway applications — Railway rolling stock power and control cables having special fire performance — Part 2-1: Cables with crosslinked elastomeric insulation — Single core cables</i>
EN 50264-2-2	<i>Railway applications — Railway rolling stock power and control cables having special fire performance — Standard wall — Part 2-2: Cables with crosslinked elastomeric insulation — Multicore cables</i>



EN 50264-3-1	<i>Railway applications — Railway rolling stock power and control cables having special fire performance — Part 3-1: Cables with crosslinked elastomeric insulation with reduced dimensions — Single core cables</i>
EN 50264-3-2	<i>Railway applications — Railway rolling stock power and control cables having special fire performance — Part 3-2: Cables with crosslinked elastomeric insulation with reduced dimensions — Multicore cables</i>
EN 50306-2	<i>Railway applications — Railway rolling stock cables having special fire performance — Thin wall — Part 2: Single core cables</i>
EN 50306-3	<i>Railway applications — Railway rolling stock cables having special fire performance — Thin wall — Part 3: Single core and multicore cables (pairs, triples and quads) screened and thin wall sheathed</i>
EN 50306-4	<i>Railway applications — Railway rolling stock cables having special fire performance — Thin wall — Part 4: Multicore and multipair cables standard wall sheathed</i>
EN 50343	<i>Railway applications — Rolling stock — Rules for installation of cabling</i>
EN 50362	<i>Method of test for resistance to fire of larger unprotected power and control cables for use in emergency circuits</i>
EN 50382-2	<i>Railway applications — Railway rolling stock high temperature power cables having special fire performance — Part 2: Single core silicone rubber insulated cables for 120 °C or 150 °C</i>
EN 60216-1	<i>Electrical Insulating Materials — Thermal endurance properties — Part 1: Ageing procedures and evaluation of test results.</i>

### **3 Terms, definitions**

For the purposes of this document the definitions given in EN 50264, EN 50306 and EN 50382 apply.

### **4 Requirements for safety**

#### **4.1 Fundamental requirements**

**4.1.1** Railway rolling stock cables are intended for the transmission and distribution of electricity in monitoring, control and power circuits. In the case of normal use, they are to be regarded as safe. Safety of a cable means that the product does not present an unacceptable risk of danger to life or property whilst being used in its intended manner.

**4.1.2** Unless otherwise stated in the appropriate part of EN 50264, EN 50306 or EN 50382, cables shall not be used for any other purpose than the transmission and distribution of electricity in control, monitoring and power circuits.

**4.1.3** The test parameters and requirements described in EN 50264, EN 50306 and EN 50382, and the test methods in EN 50305, are only for the purposes of checking with respect to safety and quality assurance. They shall not be regarded as providing guidance that the cables are suitable for service under conditions equivalent to the test conditions.