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**Järnvägsanläggningar –  
Kraft- och styrkablar med särskilda brandegenskaper  
avsedda för rälsfordon –  
Del 2-1: Kablar med tvärbunden isolering av elastomeriskt material –  
Enledarkablar**

*Railway applications –*

*Railway rolling stock power and control cables having special fire performance –*

*Part 2-1: Cables with crosslinked elastomeric insulation –*

*Single core cables*

Som svensk standard gäller europastandarden EN 50264-2-1:2008. Den svenska standarden innehåller den officiella engelska språkversionen av EN 50264-2-1:2008.

**Nationellt förord**

Standarden ska användas tillsammans med SS-EN 50264-1.

Tidigare fastställd svensk standard SS-EN 50264-2, utgåva 1, 2002, gäller ej fr o m 2011-03-01.

### *Standarder underlättar utvecklingen och höjer elsäkerheten*

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

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SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

### *Stora delar av arbetet sker internationellt*

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

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English version

**Railway applications -  
Railway rolling stock power and control cables  
having special fire performance -  
Part 2-1: Cables with crosslinked elastomeric insulation -  
Single core cables**

Applications ferroviaires -  
Câbles de puissance et de contrôle  
à comportement au feu spécifié  
pour matériel roulant ferroviaire -  
Partie 2-1: Câbles à enveloppe  
isolante réticulée -  
Câbles monoconducteurs

Bahnanwendungen -  
Starkstrom- und Steuerleitungen  
für Schienenfahrzeuge  
mit verbessertem Verhalten im Brandfall -  
Teil 2-1: Leitungen mit vernetzter  
elastomerer Isolierung -  
Einadrige Leitungen

This European Standard was approved by CENELEC on 2008-03-01. 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

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 Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

**CENELEC**

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

**Central Secretariat: rue de Stassart 35, B - 1050 Brussels**

## Foreword

This European Standard was prepared by Working Group 12, Railway cables, of the Technical Committee CENELEC TC 20, Electric cables, as part of the overall programme of work in the Technical Committee CENELEC TC 9X, Electrical and electronic applications for railways.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50264-2-1 on 2008-03-01.

This European Standard supersedes EN 50264-2:2002.

The following dates were fixed:

- |                                                                                                                                          |       |            |
|------------------------------------------------------------------------------------------------------------------------------------------|-------|------------|
| – latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement | (dop) | 2009-03-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn                                               | (dow) | 2011-03-01 |
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## Introduction

The EN 50264 series covers a range of cables, based upon halogen free materials, for use in railway rolling stock. It is divided into 5 parts under the generic title *“Railway applications - Railway rolling stock power and control cables having special fire performance”*:

- Part 1        General requirements;
- Part 2-1     Cables with crosslinked elastomeric insulation – Single core cables;
- Part 2-2     Cables with crosslinked elastomeric insulation – Multicore cables;
- Part 3-1     Cables with crosslinked elastomeric insulation with reduced dimensions – Single core cables;
- Part 3-2     Cables with crosslinked elastomeric insulation with reduced dimensions – Multicore cables.

Information regarding selection and installation of cables, including current ratings can be found in EN 50355 and EN 50343. The procedure for selection of cable cross-sectional area, including reduction factors for ambient temperature and installation type, is described in EN 50343.

Special test methods referred to in EN 50264 are given in EN 50305.

The cables in EN 50264-2-1 may also be used in EN 50264-2-2 to build up multicore sheathed cables.

Part 1, *“General requirements”*, contains a more extensive introduction to EN 50264, and should be read in conjunction with this Part 2-1.

## 1 Scope

EN 50264-2-1 specifies requirements for, and constructions and dimensions of, single core cables of the following types and voltage ratings:

- 0,6/1 kV unscreened, unsheathed (1 mm<sup>2</sup> to 400 mm<sup>2</sup>);
- 1,8/3 kV unscreened, unsheathed (1,5 mm<sup>2</sup> to 400 mm<sup>2</sup>);
- 1,8/3 kV unscreened, sheathed (1,5 mm<sup>2</sup> to 400 mm<sup>2</sup>);
- 3,6/6 kV unscreened, sheathed (2,5 mm<sup>2</sup> to 400 mm<sup>2</sup>).

All cables have class 5 tinned copper conductors to EN 60228, halogen-free insulation and halogen-free sheath. They are for use in railway rolling stock as fixed wiring, or wiring where limited flexing in operation is encountered. The requirements provide for a continuous conductor temperature not exceeding 90 °C and a maximum temperature for short circuit conditions of 200 °C based on a duration of 5 s.

Under fire conditions the cables exhibit special performance characteristics in respect of maximum permissible flame propagation (flame spread) and maximum permissible emission of smoke and toxic gases.

EN 50264-2-1 should be read in conjunction with Part 1 “*General requirements*”.

## 2 Normative references

The following referenced documents are indispensable for the application 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 10002-1        | Metallic materials – Tensile testing – Methods of test at ambient temperature                                                                                                                                                                    |
| EN 50264-1:2008   | Railway applications – Railway rolling stock power and control cables having special fire performance – Part 1: General requirements                                                                                                             |
| EN 50266-2-4      | Common test methods for cables under fire conditions – Test for vertical flame spread of vertically-mounted bunched wires or cables – Part 2-4: Procedures – Category C                                                                          |
| EN 50266-2-5      | Common test methods for cables under fire conditions – Test for vertical flame spread of vertically-mounted bunched wires or cables – Part 2-5: Procedures – Small cables – Category D                                                           |
| EN 50305:2002     | Railway applications – Railway rolling stock cables having special fire performance – Test methods                                                                                                                                               |
| EN 60228          | Conductors of insulated cables (IEC 60228)                                                                                                                                                                                                       |
| EN 60332-1-2      | Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW pre-mixed flame (IEC 60332-1-2)                                       |
| EN 60811-1-1:1995 | Insulating and sheathing materials of electric and optical cables – Common test methods – Part 1-1: General application – Measurement of thickness and overall dimensions – Tests for determining the mechanical properties (IEC 60811-1-1:1993) |