

Railway applications - Railway rolling stock cables
having special fire performance - Test methods

EESTI STANDARDI EESSÕNA

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ICS 29.060.20, 45.060.01

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English Version

Railway applications - Railway rolling stock cables having special fire performance - Test methods

Applications ferroviaires - Câbles pour matériel roulant
ferroviaire ayant des performances particulières de
comportement au feu - Méthodes d'essais

Bahnanwendungen - Kabel und Leitungen für
Schienenfahrzeuge mit verbessertem Verhalten im
Brandfall - Prüfverfahren

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

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European foreword

This document (EN 50305:2020) has been prepared by CLC/TC 20, "Electric cables".

The following dates are fixed:

- latest date by which this document has (dop) 2020-12-30
to be implemented at national level by
publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2022-12-30
standards conflicting with this document
have to be withdrawn

This document supersedes EN 50305:2002 and all of its amendments and corrigenda (if any).

EN 50305:2020 includes the following significant technical changes with respect to EN 50305:2002:

- a new cable standard EN 50382 series has been added to EN 50305;
- the long term ageing test part is improved and adapted to the whole range of products;
- the requirements are now clearly described and give more information for the test laboratories;
- the definition of "halogen free" in Annex F and the determination of halogens element test in Annex G are moved from the product standard (EN 50306 series) to EN 50305.

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Introduction

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

Hence, it is necessary to provide cables for use in railway environments which minimize 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.

European Standard series EN 50264, EN 50306 and EN 50382 specify cables, which, in the event of fire, will limit risk to people and improve the safety on railways in general. They cover cables based on halogen free materials, for use in railway rolling stock.

A separate European Standard, the EN 50264 series covers cables for similar applications up to 3,6/6 kV rating with a conductor temperature at 90 °C, but with standard wall and medium wall thicknesses of both insulation and sheath, and provides for a maximum conductor size of 400 mm².

A separate European Standard, the EN 50382 series covers cables for similar applications up to 3,6/6 kV rating with a conductor temperature at 120°C and 150°C, and provides for a maximum conductor size of 400 mm².

The EN 50306 series covers a range of sheathed and unsheathed cables with thin wall insulation, and is restricted to a rating of 300 V to earth and a maximum conductor size of 2,5 mm².

This document gives particular test methods applicable to the cables at present covered by the EN 50264 series, EN 50306 series and EN 50382 series.

1 Scope

This document specifies special test methods applicable to cables, and their constituent insulating and sheathing materials, for use in railway rolling stock. Such cables are specified in the various parts of the EN 50264 series, EN 50306 series and EN 50382 series.

Other test methods required for railway rolling stock cables and their insulating and sheathing materials are listed in Annex A.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 50264-1, *Railway applications - Railway rolling stock power and control cables having special fire performance - Part 1: General requirements*

EN 50306-1, *Railway applications - Railway rolling stock cables having special fire performance - Thin wall - Part 1: General requirements*

EN 50382-1, *Railway applications - Railway rolling stock high temperature power cables having special fire performance - Part 1: General requirements*

EN 60216-1, *Electrical insulating materials - Thermal endurance properties - Part 1: Ageing procedures and evaluation of test results*

EN 60228, *Conductors of insulated cables*

EN 60332-3-25, *Tests on electric and optical fibre cables under fire conditions - Part 3-25: Test for vertical flame spread of vertically-mounted bunched wires or cables - Category D*

EN 60754-1, *Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content*

EN 60754-2:2014, *Test on gases evolved during combustion of materials from cables - Part 2: Determination of acidity (by pH measurement) and conductivity*

EN 60811 (all parts), *Electric and optical fibre cables - Test methods for non-metallic materials*

EN 62230, *Electric cables - Spark-test method*

ISO 6349:1979, *Gas analysis - Preparation of calibration gas mixtures - Permeation method*

ISO 8458-2, *Steel wire for mechanical springs — Part 2: Patented cold-drawn non-alloy steel wire*