SLOVENSKI STANDARD
SIST EN 50306-2:2020

01-junij-2020

Nadomešča:
SIST EN 50306-2:2003

Železniške naprave - Kabli v železniških vozilih s posebno požarno odpornostjo - Tanka stena - 2. del: Enožilni kabli

Railway applications - Railway rolling stock cables having special fire performance - Thin wall - Part 2: Single core cables

Bahnanwendungen - Kabel und Leitungen für Schienenfahrzeuge mit verbessertem Verhalten im Brandfall - Reduzierte Isolierwanddicken - Teil 2: Einadrige Kabel und Leitungen

Applications ferroviaires - Câbles pour matériel roulant ferroviaire ayant des performances particulières de comportement au feu - Isolation mince - Partie 2: Câbles monoconducteurs

Ta slovenski standard je istoveten z: EN 50306-2:2020

ICS:

13.220.40	Sposobnost vžiga in obnašanje materialov in proizvodov pri gorenju	Ignitability and burning behaviour of materials and products
29.060.20	Kabli	Cables
45.060.01	Železniška vozila na splošno	Railway rolling stock in general

SIST EN 50306-2:2020 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50306-2

March 2020

ICS 13.220.40; 29.060.20; 45.060.01

Supersedes EN 50306-2:2002 and all of its amendments and corrigenda (if any)

English Version

Railway applications - Railway rolling stock cables having special fire performance - Thin wall - Part 2: Single core cables

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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 50306-2:2020) has been prepared by CLC/TC 20, “Electric cables”.

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)	2020-12-30
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2022-12-30

This document supersedes EN 50306-2:2002 and all of its amendments and corrigenda (if any).

This edition includes the following significant technical changes with respect to the previous edition:

— The documents have been updated to reflect the changes in the test standard EN 50305;

— The range of the conductor cross sections has been extended;

— The reference to cited standards (e.g. 60811 series) has been updated.

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

Introduction

The EN 50306 series covers a range of sheathed and unsheathed cables with thin wall thickness insulation, based on halogen-free materials, for use in railway rolling stock. It is divided into four parts:

Part 1: General requirements;

Part 2: Single core cables;

Part 3: Single core and multicore cables screened and thin wall sheathed;

Part 4: Multicore and multipair screened or not screened sheathed cables.

Special test methods referred to in the EN 50306 series are given in EN 50305. A guide to use is given in EN 50355 and rules for installation are given in EN 50343.

The cables in EN 50306-2:2020 are also required in other parts of this series of standards to build up cables with additional screening and sheathing and also in multicore and multipair combinations.

EN 50306-1:2020, General requirements, contains a more extensive introduction to the EN 50306 series and should be read in conjunction with this document.

1 Scope

This document specifies requirements for, and constructions and dimensions of, single core cables, rated voltage U_0 / U = 300 /300 V, of the following type:

Unscreened (0,5 mm^2 to 2,5 mm^2 single core)

These cables are rated for occasional thermal stresses causing ageing equivalent to continuous operational life at a temperature of 105 °C. For standard cables, this is determined by the acceptance test defined in EN 50305, using accelerated long-term (5 000 h) thermal ageing indicating a 125 °C/20 000 h temperature index. If the customer were to require lifetime predictions, this would be demonstrated based on the temperature index of the product as supplied by the manufacturer. The maximum temperature for short circuit conditions is 160 °C based on 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. These requirements are specified to permit the cables to satisfy Hazard Level 3 of EN 45545-1 and EN 45545-2.

EN 50306-2:2020 is expected to be used in conjunction with EN 50306-1:2020, General requirements.

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 10002-1, *Metallic materials - Tensile testing - Part 1: Method of test at ambient temperature*

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

EN 50305:2020, *Railway applications - Railway rolling stock cables having special fire performance - Test methods*

EN 50306-1:2020, *Railway applications - Railway rolling stock cables having special fire performance - Thin wall - Part 1: General requirements*

EN 50334, *Marking by inscription for the identification of cores of electric cables*

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*

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

EN 61034-2, *Measurement of smoke density of cables burning under defined conditions - Part 2: Test procedure and requirements*

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

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Single-core cables

4.1 General

The cables shall conform to the applicable general requirements given in EN 50306-1:2020 and to the specific requirements of this Part 2.

Conformity with the requirements shall be checked by inspection and by the tests given in Table 4.

4.2 Marking and code designation

4.2.1 Marking of cable

Cables shall be marked with the following:

— Manufacturer's name;

— EN reference;

— Voltage rating (U_0);

— Conductor size;

— A code designation according for use of the cable (see 4.2.2).

For example:

XYZ EN 50306-2 300 V 1x1,5 M

The marking shall conform to the requirements of EN 50306-1:2020, Clause 5.

4.2.2 Code Designation

The following letters shall be used as a code to identify the suitability of a particular cable with the Hazard Level 3 of EN 45545-1, and to indicate performance levels relating to low temperature and to oil and fuel resistance:

Hazard Level EN 45545-1 HL3

— low temperature / oil resistance C

— extra low temperature / oil resistance F

— low temperature / extra oil and fuel resistance J

— extra low temperature / extra oil and fuel resistance M

4.3 Core identification

4.3.1 Single core cables

The colour of the cores shall be white unless otherwise specified in the particular sections.

The colour shall be clearly identifiable and durable. Durability shall be checked by the test given in 10.1 of EN 50305:2020.

Conformity with these requirements shall be verified by visual examination.

4.3.2 Multicore/multipair cables

Cores complying with EN 50306-2:2020 are used as components of multicore and multipair cables, e.g. in EN 50306-3:2020 or EN 50306-4:2020. In such cases the identification of the individual core in a cable or a pair shall be by numbers.

The numbers shall be printed in a colour, which contrasts with the core colour. The numbers on individual cores shall be spaced at a maximum of 25 mm apart.

The marking by numbers shall conform to EN 50334, unless otherwise specified, and conformity shall be checked by visual examination and measurement.

4.4 Rated voltage

The rated voltage recognized for the purposes of this standard shall be

U_0 / U = 300/300 V

NOTE See EN 50355 and EN 50343 for further information.

4.5 Construction

4.5.1 Conductor

The conductor shall conform to the requirements given in Table 1. The wires shall be tin coated annealed copper.

When tested in accordance with EN 10002-1, the minimum elongation of conductors shall be 10 %.

4.5.2 Insulation system

The insulation system shall be manufactured from material as defined in 3.1 of EN 50306-1:2020 and shall meet the requirements of Clause 5 of this Part 2. The insulation shall be applied by extrusion. The insulation thickness shall conform to the specified value given in Table 1 and determined in accordance with EN 50306-1:2020, Annex A.