
Električni kabli - Niskonapetostni energetski kabli z naznačeno napetostjo do vključno 450/750 V (U0/U) - 3-21. del: Kabli s posebnimi ognjevarnimi lastnostmi - Zvijavi kabli z zamreženo izolacijo brez halogenov in z nizko emisijo dima

Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (U0/U) - Part 3-21: Cables with special fire performance - Flexible cables with halogen-free crosslinked insulation, and low emission of smoke

Kabel und Leitungen - Starkstromleitungen mit Nennspannungen bis 450/750 V (U0/U) - Teil 3-21: Leitungen mit verbessertem Verhalten im Brandfall - Flexible halogenfreie, raucharme Leitungen mit vernetzter Isolierung

[SIST EN 50525-3-21:2011](https://standards.iteh.ai/catalog/standards/sist/db90e4e9-2eb8-4999-b599-)

Câbles électriques - Câbles d'énergie basse tension de tension assignée au plus égale à 450/750 V (U0/U) - Partie 3-21: Câbles à performances spéciales au feu - Câbles souples isolés en matériau élastomère réticulé sans halogène, à faible dégagement de fumée

Ta slovenski standard je istoveten z: EN 50525-3-21:2011

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

SIST EN 50525-3-21:2011

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 50525-3-21:2011](https://standards.iteh.ai/catalog/standards/sist/db90e4e9-2eb8-4999-b599-83ee9b56adc9/sist-en-50525-3-21-2011)

<https://standards.iteh.ai/catalog/standards/sist/db90e4e9-2eb8-4999-b599-83ee9b56adc9/sist-en-50525-3-21-2011>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 50525-3-21

May 2011

ICS 29.060.20

Supersedes HD 22.13 S2:2007

English version

**Electric cables -
Low voltage energy cables of rated voltages up to and including 450/750 V
(U_0/U) -
Part 3-21: Cables with special fire performance -
Flexible cables with halogen-free crosslinked insulation, and low emission
of smoke**

Câbles électriques -
Câbles d'énergie basse tension de tension
assignée au plus égale à 450/750 V
(U_0/U) -
Partie 3-21: Câbles à performances
spéciales au feu -
Câbles souples isolés en matériau
élastomère réticulé sans halogène, à
faible dégagement de fumée

Kabel und Leitungen -
Starkstromleitungen mit Nennspannungen
bis 450/750 V (U_0/U) -
Teil 3-21: Starkstromleitungen mit
verbessertem Verhalten im Brandfall -
Flexible halogenfreie, raucharme
Leitungen mit vernetzter Isolierung

<https://standards.iteh.ai/catalog/standards/sist/db90e4e9-2eb8-4999-b599-837096d1c1e1/cenelec-en-50525-3-21:2011>

This European Standard was approved by CENELEC on 2011-01-17. 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, Croatia, 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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 20, Electric cables.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50525-3-21 on 2011-01-17.

This document, which is one of a multipart series, supersedes HD 22.13 S2:2007.

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

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) 2012-01-17
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2014-01-17

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 50525-3-21:2011](https://standards.iteh.ai/catalog/standards/sist/db90e4e9-2eb8-4999-b599-83ee9b56adc9/sist-en-50525-3-21-2011)

<https://standards.iteh.ai/catalog/standards/sist/db90e4e9-2eb8-4999-b599-83ee9b56adc9/sist-en-50525-3-21-2011>

Contents

	Page
1 Scope	4
2 Normative references	4
3 Terms and definitions	5
4 Heat resistant cables (90 °C)	5
4.1 Heavy duty cables – H07ZZ-F	5
4.2 Heavy duty multicore cables – H07ZZ-F	6
Annex A (normative) Tests for cables to EN 50525-3-21	8
Annex B (normative) General data	9
Annex C (normative) Requirements for compatibility test	13
C.1 Test conditions	13
C.2 Requirements	13
Bibliography	14
Tables	
Table A.1	8
Table B.1	9
Table B.2	12
Table C.1 – Requirements	13

ITeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 50525-3-21:2011](https://standards.iteh.ai/catalog/standards/sist/db90e4e9-2eb8-4999-b599-83ee9b56adc9/sist-en-50525-3-21-2011)

<https://standards.iteh.ai/catalog/standards/sist/db90e4e9-2eb8-4999-b599-83ee9b56adc9/sist-en-50525-3-21-2011>

1 Scope

EN 50525-3-21 applies to flexible cables, insulated and sheathed with halogen-free crosslinked compound and having low emission of smoke and corrosive gases when exposed to fire.

NOTE 1 Low emission of smoke is checked in accordance with EN 61034-2. Low emission of corrosive gases is checked as part of the check for absence of halogens (see Annex B of EN 50525-1).

The cables are of rated voltage U_0/U 450/750 V.

The cables are intended for the connection of equipment and machinery to the fixed supply.

The maximum conductor operating temperature for each of the cables in this standard is 90 °C.

NOTE 2 HD 516 contains extensive guidance on the safe use of cables in this standard.

This EN 50525-3-21 should be read in conjunction with EN 50525-1, which specifies 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.

NOTE One or more references to the standards below are in respect of a specific sub-division of that standard, for instance a clause, a table, a class or a type. Cross-references to these standards are undated and, at all times, the latest version applies.

EN 50363-5	Insulating, sheathing and covering materials for low voltage energy cables - Part 5: Halogen-free, cross-linked insulating compounds
EN 50363-6	Insulating, sheathing and covering materials for low voltage energy cables - Part 6: Halogen-free, cross-linked sheathing compounds
EN 50395	Electrical test methods for low voltage energy cables
EN 50396	Non electrical test methods for low voltage energy cables
EN 50525-1	Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (U_0/U) - Part 1: General requirements
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 60332-3-24	Tests on electric and optical fibre cables under fire conditions - Part 3-24: Test for vertical flame spread of vertically-mounted bunched wires or cables - Category C (IEC 60332-3-24)
EN 60811-1-2	Insulating and sheathing materials of electric and optical cables - Common test methods - Part 1-2: General application - Thermal ageing methods (IEC 60811-1-2)
EN 60811-1-4	Insulating and sheathing materials of electric and optical cables - Common test methods - Part 1-4: General application - Tests at low temperature (IEC 60811-1-4)
EN 61034-2	Measurement of smoke density of cables burning under defined conditions - Part 2: Test procedure and requirements (IEC 61034-2)

3 Terms and definitions

For the purposes of this document the terms and definitions given in Clause 3 of EN 50525-1 apply.

4 Heat resistant cables (90 °C)

4.1 Heavy duty cables – H07ZZ-F

4.1.1 Construction

4.1.1.1 Conductor

The conductor shall be class 5, according to EN 60228.

4.1.1.2 Sizes of cable

The sizes of cable shall be:

- single core – 1,5 mm² to 630 mm²;
- 2 and 5 core – 1,0 mm² to 25 mm²;
- 3 and 4 core – 1,0 mm² to 300 mm².

4.1.1.3 Insulation

The insulation shall be a cross-linked compound, Type EI 8 to EN 50363-5, applied around each conductor.

4.1.1.4 Assembly

The cores of cables having two to five cores shall be twisted together.

NOTE 1 A centre filler may be used.

NOTE 2 A tape may be applied around the core assembly before application of the sheath.

4.1.1.5 Sheath

The cores shall be covered with a sheath.

- a) For cables with a specified sheath thickness up to and including 2,4 mm:
 - 1) sheath in a single layer, cross-linked compound of type EM 8 to EN 50363-6.
- b) For cables with a specified sheath thickness greater than 2,4 mm:
 - 1) sheath either in a single layer, cross-linked compound of type EM 8 to EN 50363-6;
 - 2) or in two layers, with the inner layer made of one of the cross-linked compounds type EM 8 or EM 10 to EN 50363-6 and the outer layer of the cross-linked compound type EM 8 to EN 50363-6.

The sheath applied in a single layer or the inner layer of the sheath in two layers shall, for cables with two to five cores, fill the spaces between the cores. Where a tape of suitable

material is applied around the core assembly (see NOTE 2 to 4.1.1.4) this requirement shall not apply, provided that the finished cables shall not have any substantial cavity in the outer interstices between the cores.

4.1.1.6 Marking

The cable shall be marked with the CENELEC code H07ZZ-F. The marking shall comply with Clause 6 of EN 50525-1.

4.1.2 Requirements

Each cable shall comply with the appropriate requirements given in EN 50525-1, and the particular requirements of this Part.

Testing shall be in accordance with Annex A.

The dimensions of the cables shall conform to Table B.1 for the relevant size.

The requirements to be met for the compatibility test shall be as given in Annex C.

When tested in accordance with the method and procedure given in EN 61034-2, all sizes of cable shall exceed 60 % light transmittance throughout the test.

4.2 Heavy duty multicore cables – H07ZZ-F

4.2.1 Construction

4.2.1.1 Conductor

The conductor shall be class 5, according to EN 60228.

4.2.1.2 Sizes of cable

The sizes of cable shall be:

- 6, 7, 12, 18, 24 and 36 core – 1,5 mm² and 2,5 mm²;
- 6, 7, 12 and 18 core – 4 mm².

NOTE The number of cores is preferred. Other numbers of cores, between the minimum and maximum for each conductor size, are permitted. See also footnote c to Table B.2.

4.2.1.3 Insulation

The insulation shall be a cross-linked compound, Type EI 8 to EN 50363-5, applied around each conductor.

The identification of each core shall be in accordance with Annex D of EN 50525-1.

4.2.1.4 Assembly

The cores shall be twisted together. A single core in the centre is not permitted. A protective conductor, if any, shall be applied in the outer layer. A centre filler shall be used for cables having 6, 7, 18, and 36 cores, and also for 19 cores when this non-preferred size is used.

NOTE 1 A centre filler may be used for other sizes.

NOTE 2 A tape may be applied around the core assembly before application of the sheath.

4.2.1.5 Sheath

The cores shall be covered with a sheath.

The sheath shall be made up as follows:

- a) For cables with a specified sheath thickness up to and including 2,4 mm:
 - 1) sheath in a single layer, cross-linked compound type EM 8 to EN 50363-6.
- b) For cables with a specified sheath thickness greater than 2,4 mm:
 - 1) either in a single layer, cross-linked compound type EM 8 to EN 50363-6;
 - 2) or in two layers, with the inner layer made of one of the cross-linked compounds type EM 8 or EM 10 to EN 50363-6 and the outer layer of the cross-linked compound type EM 8 to EN 50363-6.

The sheath in a single layer or the inner layer of the sheath in two layers shall fill the spaces between the cores. Where a tape of suitable material is applied around the core assembly (see NOTE 2 to 4.2.1.4) this requirement shall not apply, provided that the finished cables shall not have any substantial cavity in the outer interstices between the cores.

4.2.1.6 Marking

The cable shall be marked with the CENELEC code H07ZZ-F. The marking shall comply with Clause 6 of EN 50525-1.

4.2.2 Requirements

Each cable shall comply with the appropriate requirements given in EN 50525-1, and the particular requirements of this Part.

Testing shall be in accordance with Annex A.

The dimensions of the cables shall conform to Table B.2 for the relevant size.

The requirements to be met for the compatibility test shall be as given in Annex C.

When tested in accordance with the method and procedure given in EN 61034-2, all sizes of cable shall exceed 60 % light transmittance throughout the test.