

Flat polyvinyl chloride sheathed flexible cables

The European Standard EN 50214:2006 has the status of a
British Standard

ICS 29.060.20

National foreword

This British Standard was published by BSI. It is the UK implementation of EN 50214:2006. It supersedes BS EN 50214:1998 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee GEL/20, Electric cables, to Subcommittee GEL/20/17, Low voltage cables.

A list of organizations represented on GEL/20/17 can be obtained on request to its secretary.

This British Standard makes reference to HD 308, which is not published directly by BSI but is incorporated into the content of other British Standards. The relevant information on core colours can also be found in BS 7671. Similarly, specific tests and requirements from HD 21.1 can be cross-referenced directly as follows:

HD 21 clause	Requirement	BS cross reference
HD 21.1 s/c 1.3	Common marking	5.3.3 of BS 6004:2000
HD 21.1 clause 3.1	Indication of origin	5.3.2 of BS 6004:2000
HD 21.1 clause 3.2	Continuity of mark	5.3.2 of BS 6004:2000
HD 21.1 clause 3.3	Durability	5.3.5 of BS 6004:2000

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Flat polyvinyl chloride sheathed flexible cables

Câbles souples méplats gainés
en polychlorure de vinyle

Flache PVC-ummantelte
Steuerleitungen

This European Standard was approved by CENELEC on 2006-10-01. 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.

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CENELEC

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

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Foreword

This European Standard was prepared for Technical Committee CENELEC TC 20, Electric cables, with the agreement of CEN TC 10, Lifts, escalators and moving walks.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50214 on 2006-10-01.

This European Standard supersedes EN 50214:1997 and HD 359 S2:1990.

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) 2007-10-01
 - latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2008-01-01
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1 Scope

This European Standard covers the construction, requirements and particular test methods for flat, flexible PVC insulated and PVC sheathed cables, of rated voltage U_o/U 300/500 V, for use in passenger and goods lifts (elevators), and U_o/U 450/750 V for general purposes and for special applications such as hoists and travelling cranes.

Cables of composite construction (for instance, cables with cores of different sizes) are not specified, but conditions are given for the inclusion of telecommunication units into the cables.

NOTE 1 This revision is in accordance with an agreement with CEN TC 10 to specify in the same standard a) flexible cables for lifts as required by EN 81, and b) flexible cable for applications such as hoists and travelling cranes, previously found in HD 359. In accordance with this agreement only those cables in Clauses 5 and 6 are suitable for use with EN 81.

NOTE 2 The limits for the overall diameter of the cables have been calculated in accordance with EN 60719.

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 81 Series	Safety rules for the construction and installation of lifts
EN 50334	Marking by inscription for the identification of cores of electric cables
EN 50363 Series	Insulating, sheathing and covering materials for low voltage energy cables
EN 50395	Electrical test methods for low voltage energy cables
EN 50396	Non electrical test methods for low voltage energy cables
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 60719	Calculation of the lower and upper limits for the average outer dimensions of cables with circular copper conductors and of rated voltages up to and including 450/750V (IEC 60719)
EN 60811 Series	Insulating and sheathing materials of electric and optical cables - Common test methods (IEC 60811 series)
HD 21 Series	Cables of rated voltages up to and including 450/750 V and having thermoplastic insulation
HD 308	Identification of cores in cables and flexible cords
IEC 60227-6	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 6: Lift cables and cables for flexible connections

3 Definitions

3.1 Definitions relating to insulating and sheathing materials

3.1.1

type of compound

the category in which a compound is placed according to its properties, and determined by specific tests. The type designation is not directly related to the composition of the compound

3.1.2

polyvinyl chloride compound (PVC)

combinations of materials, of which polyvinyl chloride is the characteristic constituent, suitably selected, proportioned and treated which meet the requirements given in the particular specification

3.2 Definitions relating to the tests

3.2.1

type tests (Symbol T)

tests required to be made before supplying a type of cable covered by this standard on a general commercial basis, in order to demonstrate satisfactory performance characteristics to meet the intended application. These tests are of such a nature that, after they have been made, they need not be repeated unless changes are made in the cable materials, design or type of manufacturing process which might change the performance characteristics

3.2.2

sample tests (Symbol S)

tests made on samples of completed cable, or components taken from a completed cable adequate to verify that the finished product meets the design specifications

3.2.3

routine tests (Symbol R)

tests made on all production cable lengths to demonstrate their integrity

3.3

rated voltage

the rated voltage of a cable is the reference voltage for which the cable is designed, and which serves to define the electrical tests

The rated voltage is expressed by the combination of two values U_0/U , expressed in volts:

U_0 being the r.m.s. value between any insulated conductor and "earth" (metal covering of the cable or the surrounding medium);

U being the r.m.s. value between any two phase-conductors of a multicore cable or of a system of single-core cables.

In an alternating current system, the rated voltage of a cable shall be at least equal to the nominal voltage of the system for which it is intended.

This condition applies both to the value U_0 and to the value U .

In a direct current system, the nominal voltage between conductors shall be not higher than 1,5 times the rated voltage (U) of the cable, and the nominal voltage between any conductor and earth shall not be higher than 1,5 times the rated voltage (U_0) of the cable.

NOTE The operating voltage of a system may permanently exceed the nominal voltage of such a system by 10 %. A cable can be used at a 10 % higher operating voltage than its rated voltage if the latter is at least equal to the nominal voltage of the system.

3.4

freely suspended length

the unsupported allowed length of cable between two fixing points

3.5

strain bearing member (sbm)

metallic or non-metallic high tensile strand or bunch included in the cable construction in order to hold the cable weight

4 Requirements for the construction of cables

4.1 General

Unless otherwise indicated in Clauses 5, 6 or 7 of this EN, the cables shall comply with the general requirements specified in HD 21.1, Clause 5.

4.2 Core identification

Both cables with or without a green-and-yellow core are harmonised. For cables with five cores or fewer, the identification of the remaining cores shall be either by colours, in accordance with a) below, or by numbers in accordance with b) below. For cables with six cores or more only identification by numbers shall be used, except for any green-and-yellow core.

a) Identification by colours

The identification system of HD 308 shall be used.

b) Identification by numbers

Identification by numbers shall be in accordance with EN 50334.

The green-and-yellow core, if any, shall not be identified by a number.

4.3 Telecommunication Units

It shall be permitted to introduce telecommunication units into the cable construction described in Clauses 5 and 6, subject to the following conditions:

- 1) units shall be chosen from copper pairs or copper coaxial or optical fibres;

NOTE Two pairs may alternatively be included as a quad.

- 2) units shall have a diameter equal or very close to the diameter of insulated cores;
- 3) preferably the number of telecommunication units in a cable shall not exceed three;
- 4) the position of units shall be central and symmetrical;
- 5) thickness (e_2) of the cable sheath, where measured over telecommunication units, shall comply with the requirements for minimum thickness (see 5.3.5 and 6.3.5) but shall not be taken into account when calculating the mean value;
- 6) the colour or identification of the outer sheath over units shall not conflict with that of the cores in 4.2. However, no restriction shall be placed on colours used for insulations under an outer sheath.