

Flexible cables for lifts

The European Standard EN 50214:1997 has the status of a British Standard

ICS 29.060.20

National foreword

This British Standard is the English language version of EN 50214:1997. Whilst it specifically supersedes Section 5 of BS 6977:1991, it is considered that the remaining sections of BS 6977 are no longer of sufficient importance to warrant their attention. Accordingly, BS 6977:1991 is withdrawn.

Amendment No. 1:2004 implements the changes to the identification of cores by colours, in accordance with HD 308 S2. The principal identification colours are now:

- Single phase — Green-and-yellow (Earth); blue (Neutral); brown (Live).
- Three phase — Green-and-yellow (Earth); blue (Neutral); brown, black, grey (Live).

Users should ensure that any interconnection between cables with these new colours and those with the pre-existing ones is carried out safely. BS 7671, as amended in parallel with this standard, gives some guidance in this respect, but does not cover all installation conditions or cable uses.

The provisions introduced by amendment No. 1:2004 are effective from 1st April 2004. The version of this standard incorporating only corrigendum No. 1:1999 remains current until 31st March 2006.

The UK participation in its preparation was entrusted by Technical Committee GEL/20, Electric cables, to Subcommittee GEL/20/1, Wiring cables, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

WARNING. This standard calls for the use of substances and/or procedures that may be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

This British Standard, having been prepared under the direction of the Electrotechnical Sector Committee, was published under the authority of the Standards Committee and comes into effect on 15 December 1998

© BSI 12 February 2004

Amendments issued since publication

Amd. No.	Date	Comments
10421 Corrigendum	May 1999	Indicated by a sideline
14203	12 February 2004	Revision of national foreword, NA.8 , NA.9.2 and NA.9.3

ISBN 0 580 30669 0

The following HDs can be directly cross-referenced to existing British Standards or parts thereof:

HD 383	—	BS 6360
HD 405.1	—	BS 4066-1

NOTE HD 405.1 has been superseded by EN 50265-2-1 in conjunction with EN 50265-1, the English language version of which are BS EN 50265-2-1 and BS EN 50265-1, respectively.

Insulating and sheathing materials, which are referenced to HD 21.1 in the EN, can be referenced in the BS to the appropriate Section of BS 7655, thus:

TI 2 and TI 5	—	Section 3.1
TM 2 and TM 4	—	Section 4.1

Other tests and requirements

Specific tests and requirements can be cross-reference directly as follows:

Reference	Description	British Standard
HD 21.1 s/c 1.3	Common marking	5.3.3 of BS 6004:2000
HD 21.1 Clause 2	2.2 Definition relating to the tests 2.3 Rated voltage	3.6, 3.7 and 3.8 of BS 6346:1997 4 of BS 6004:2000
HD 21.1 Clause 3	3.1 Indication of origin 3.2 Continuity of mark 3.3 Durability	5.3.2 of BS 6004:2000 5.3.2 of BS 6004:2000 5.3.5 of BS 6004:2000
HD 21.2 s/c 2.1	“Conductor resistance”	Appendix A and Table 5 of BS 6360:1991
HD 21.2 s/c 2.4	“Insulation resistance”	C.4 of BS 6004:2000
HD 21.2 s/c 2.5	“Long-term resistance insulation to d.c.”	C.5 of BS 6004:2000
HD 21.2 s/c 2.6	Absence of faults	C.6 of BS 6004:2000
HD 21.2 s/c 3.1	Flexing test	D.1 of BS 6500:2000

Other tests and requirements

National Annex NA contains requirements and test methods taken from the following cross-references:

HD 21.1 subclause 5.2.3

HD 21.1 subclause 5.5.5

HD 21.2 subclause 1.9

HD 21.2 subclause 1.10

HD 21.2 subclause 2.2

HD 21.2 subclause 2.3

IEC 60227-6, subclause 2.4.1

BS EN 50334

HD 308

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

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover pages i and ii, the EN title page, pages 2 to 23 and a back cover.

The BSI copyright notice displayed in this document indicates when the document was last issued.

Descriptors: electric cable, flexible cable, insulated cable, lift, goods lift, definition, specification, construction, insulation, sheath, polyvinyl chloride, dimension, test, marking

English version

Flexible cables for lifts

Câbles souples pour ascenseurs et monte-charge

Flexible Aufzugssteuerleitungen

This European Standard was approved by CENELEC on 1996-12-09. 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.

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.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and 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 the Technical Committee CENELEC TC 20, Electric cables.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50214 on 1996-12-09.

This European Standard supersedes, in respect of cables for use in goods and passenger lifts, HD 359 S2. The HD will be reviewed and revised in respect of its future applicability for other (non-lift) applications.

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) 1997-12-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1997-12-01

For cables for use in goods and passenger lifts, which have complied with HD 359 S2:1990 before 1997-12-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1998-12-01.

Annexes designated “normative” are part of the body of the standard. Annexes designated “informative” are given for information only. In this standard, Annex A is normative and Annex B is informative.

Contents

Page		
	Foreword	2
1	Scope	3
2	Normative references	3
3	Definitions	3
4	General requirements for the construction of cables	3
5	Particular requirements for the construction of cables	4
6	Test methods	10
7	Marking	10
8	Guide to use	10
	Annex A (normative) Test methods	11
	Annex B (informative) Guide to use	18

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_0/U 300/500 V, for use in passenger and goods lifts (elevators), as required by EN 81. 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.

2 Normative references

This European Standard incorporates by dated or undated reference, provision from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 81, *Safety rules for the construction and installation of lifts and service lifts.*

EN 60811, *Common test methods for insulating and sheathing materials of electric cables.*

HD 21, *PVC insulated cables of rated voltage up to 450/750 V.*

HD 186, *Marking by inscription for identification of cores of electric cables.*

HD 308, *Identification and use of cores of flexible cables.*

HD 383, *Conductors of insulated cables.*

HD 405.1, *Tests on electric cables under fire conditions — Part 1: Single vertical cable.*

IEC 227-6, *Lift cables and cables for flexible connections.*

3 Definitions

3.1 General

General definitions specified in Clause 2 of HD 21.1 shall apply, as appropriate.

3.2

freely suspended length

the unsupported allowed length of cable between two fixing points

3.3

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 General requirements for the construction of cables

4.1 General

Unless otherwise indicated in Clause 5 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/yellow core are harmonized. For cables with five cores or less, 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/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 HD 186 except that, for cables specified in this document, the restriction that HD 186 is only applicable to cables with more than five cores does not apply.

The green/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 subject to the following conditions:

— units shall be chosen from copper pairs or copper coaxial or optical fibres;

NOTE Two pairs may alternatively be included as a quad.

— units shall have a diameter equal or very close to the diameter of insulated cores;

— preferably the number of telecom units in a cable shall not exceed three;

— the position of units shall be central and symmetrical;

— thickness (e_2) of the cable sheath, where measured over telecommunication units, shall comply with the requirements for minimum thickness (see **5.1.3.5** and **5.2.3.5**) but shall not be taken into account when calculating the mean value;

— 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.

5 Particular requirements for the construction of cables

5.1 Flat PVC sheathed flexible cables for low rise lifts

5.1.1 Code designation

Without strain bearing members: H05VVH6-F.

With strain bearing members: H05VVD3H6-F.

5.1.2 Rated voltage

300/500 V.

5.1.3 Construction

5.1.3.1 Conductor

Material: copper.

Number of conductors: 4 up to 24.

Cross sections: 0,75 and 1 mm².

The conductors shall be in accordance with the requirements of class 5 given in HD 383.

5.1.3.2 Insulation

The insulation shall be PVC compound of type TI 2 of HD 21.1 applied around each conductor.

The insulation thickness shall comply with the specified value in Table 3, and shall be measured in accordance with subclause **5.2.3** of HD 21.1.

The insulation resistance at 70 °C shall be not less than the values given in Table 3.

5.1.3.3 Assembly of cores

The preferred number of cores for the composition of the cables are given in Table 1, according to the nominal cross-sectional areas of conductors.