

Electric cables — Guide to use for cables with a rated voltage not exceeding 450/750 V —

Part 2: Harmonized cable types from HD 21 and HD 22

(Implementation of CENELEC HD 516 S2)

ICS: 29.060.20

Confirmed January 2012

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by Technical Committee GEL/20, Electric cables, to Subcommittee GEL/20/17, Low voltage cables, upon which the following bodies were represented:

- BEAMA Installation Ltd.
- British Approvals Service for Cables
- British Cables Association
- British Plastics Federation
- Chartered Institution of Building Services
- Department of Trade and Industry — Consumer Safety Unit
- Electricity Association
- Energy Industries Council
- Engineering Industries Association
- ERA Technology Ltd.
- Ministry of Defence — UK Defence Standardization

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 22 July 2005

© BSI 22 July 2005

First published as BS 7540
January 1992
Second edition November 1994
Third edition as BS 7540-2
22 July 2005

The following BSI references relate to the work on this British Standard:
Committee reference
GEL/20/17
Draft for comment
DC 03/303438

ISBN 0 580 45501 7

Amendments issued since publication

Amd. No.	Date	Comments

Contents

	Page
Foreword	iii
Introduction	1
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Specific cable types	2
Annex A (informative) Harmonized cable types from HD 21 and HD 22 not implemented in a British Standard	51
Annex B (informative) Relationship between cable product standards and this part of BS 7540	53
Annex C (normative) Duty cycles, current ratings and voltage drop for arc welding cables (copper conductors)	54
Bibliography	57
Table 1A — Cables conforming to HD 21.3 — Constructional details, method of installation and temperature	3
Table 1B — Cables conforming to HD 21.3 — Guide to use	4
Table 2A — Cables conforming to HD 21.5 — Constructional details, method of installation and temperature	5
Table 2B — Cables conforming to HD 21.5 — Guide to use	7
Table 3A — Cables conforming to HD 21.7 — Constructional details, method of installation and temperature	8
Table 3B — Cables conforming to HD 21.7 — Guide to use	9
Table 4A — Cables conforming to HD 21.9 — Constructional details, method of installation and temperature	10
Table 4B — Cables conforming to HD 21.9 — Guide to use	11
Table 5A — Cables conforming to HD 21.10 — Constructional details, method of installation and temperature	12
Table 5B — Cables conforming to HD 21.10 — Guide to use	14
Table 6A — Cables conforming to HD 21.12 — Constructional details, method of installation and temperature	15
Table 6B — Cables conforming to HD 21.12 — Guide to use	17
Table 7A — Cables conforming to HD 21.13 — Constructional details, method of installation and temperature	18
Table 7B — Cables conforming to HD 21.13 — Guide to use	20
Table 8A — Cables conforming to HD 22.3 — Constructional details, method of installation and temperature	21
Table 8B — Cables conforming to HD 22.3 — Guide to use	22
Table 9A — Cables conforming to HD 22.4 — Constructional details, method of installation and temperature	23
Table 9B — Cables conforming to HD 22.4 — Guide to use	25
Table 10A — Cables conforming to HD 22.6 — Constructional details, method of installation and temperature	26
Table 10B — Cables conforming to HD 22.6 — Guide to use	27
Table 11A — Cables conforming to HD 22.7 — Constructional details, method of installation and temperature	28
Table 11B — Cables conforming to HD 22.7 — Guide to use	29
Table 12A — Cables conforming to HD 22.9 — Constructional details, method of installation and temperature	30
Table 12B — Cables conforming to HD 22.9 — Guide to use	31
Table 13A — Cables conforming to HD 22.10 — Constructional details, method of installation and temperature	32

	Page
Table 13B — Cables conforming to HD 22.10 — Guide to use	34
Table 14A — Cables conforming to HD 22.11 — Constructional details, method of installation and temperature	35
Table 14B — Cables conforming to HD 22.11 — Guide to use	37
Table 15A — Cables conforming to HD 22.12 — Constructional details, method of installation and temperature	38
Table 15B — Cables conforming to HD 22.12 — Guide to use	40
Table 16A — Cables conforming to HD 22.13 — Constructional details, method of installation and temperature	42
Table 16B — Cables conforming to HD 22.13 — Guide to use	44
Table 17A — Cables conforming to HD 22.15 — Constructional details, method of installation and temperature	45
Table 17B — Cables conforming to HD 22.15 — Guide to use	47
Table 18A — Cables conforming to HD 22.16 — Constructional details, method of installation and temperature	48
Table 18B — Cables conforming to HD 22.16 — Guide to use	50
Table A.1 — Harmonized cable types from HD 21 not implemented in a British Standard	51
Table A.2 — Harmonized cable types from HD 22 not implemented in a British Standard	52
Table B.1 — Cross-reference table	53
Table C.1 — Ambient temperature correction factors	54
Table C.2 — Current rating for single cycle operation over a maximum period of 5 min	55
Table C.3 — Current rating for repeat cycle operation based on a 5 min repeat period	55
Table C.4 — Current rating for repeat cycle operation based on a 10 min repeat period	55
Table C.5 — Voltage drop at normal and elevated temperatures	56

Foreword

This part of BS 7540 has been prepared by Subcommittee GEL/20/17. Together with BS 7540-1 and BS 7540-3 it supersedes BS 7540:1994, which is withdrawn. BS 7540 is published in three parts:

- a) Part 1: *General guidance*;
- b) Part 2: *Harmonized cable types from HD 21 and HD 22*;
- c) Part 3: *National standard cables not included in HD 21 or HD 22*.

BS 7540-1 and BS 7540-2 together form the UK implementation of the European Committee for Electrotechnical Standardization (CENELEC) Harmonization Document HD 516 S2.

NOTE BS 7540 is applicable only to cable types that are specified in British Standards, so the parts of HD 516 that cover non-BS cables are not included in the main body of BS 7540. These non-BS cables are, however, listed in Annex A, with references to the relevant clauses in HD 21 and HD 22.

This part of BS 7540 should be read in conjunction with BS 7540-1, which gives general recommendations and guidance.

Attention is drawn to the Electrical Equipment (Safety) Regulations 1994 [1].

Additional information on installation practice is given in BS 7671.

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 to iii, a blank page, pages 1 to 57 and a back cover.

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

Introduction

This British Standard provides guidance for equipment manufacturers, installers and end-users on the properties of low voltage electric cables, and the limitations that are deemed to be necessary in order to safeguard life, buildings and goods.

The information is given in the form of limiting values and is illustrated by examples, which are not exhaustive but which indicate ways by which safety can be obtained.

1 Scope

This part of BS 7540 provides guidance for the safe use of electric cables with a rated voltage not exceeding 450/750 V. It is applicable to those cable types that are specified in Harmonized Documents HD 21 and HD 22 as implemented in BS 638-4, BS 6004, BS 6007, BS 6500, BS 7211 and BS 7919.

NOTE These British Standards also specify requirements for cable types that are specific to the United Kingdom and are not included in HD 21 or HD 22. Guidance on these cables is given in BS 7540-3. The classes of external influence (environmental conditions) used in this part of BS 7540 are as listed in BS 7540-1:2005, .

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.

BS 638-4:1996, *Arc welding power sources, equipment and accessories — Specification for welding cables*.

BS 4727-2:Group 08, *Glossary of Electrotechnical, power, telecommunication, electronics, lighting and colour terms — Part 2: Terms particular to power engineering — Group 08: Electric cable terminology*.

BS 6004:2000, *Electric cables — PVC insulated, non-armoured cables for voltages up to and including 450/750 V, for electric power, lighting and internal wiring*.

BS 6007:2000, *Electric cables — Single core unsheathed heat resisting cables for voltages up to and including 450/750 V, for internal wiring*.

BS 6500:2000, *Electric cables — Flexible cords rated up to 300/500 V, for use with appliances and equipment intended for domestic, office and similar environments*.

BS 7211:1998, *Specification for thermosetting insulated cables (non-armoured) for electric power and lighting with low emission of smoke and corrosive gases when affected by fire*.

BS 7540-1:2005, *Electric cables — Guide to use for cables with a rated voltage not exceeding 450/750 V — Part 1: General guidance*.

BS 7671, *Requirements for electrical installations — IEE Wiring Regulations — Sixteenth edition*.

BS 7919:2001, *Electric cables — Flexible cables rated up to 450/750 V, for use with appliances and equipment intended for industrial and similar environments*.

3 Terms and definitions

For the purposes of this part of BS 7540, the terms and definitions given in BS 7540-1, BS 7671 and BS 4727-2:Group 08 apply.

4 Specific cable types

Specific guidance for each cable type is organized in tabular format.

- HD 21 is covered by Tables 1 to 7.
- HD 22 is covered by Tables 8 to 19.

There are two tables for each part of each HD.

Table A for each part of the relevant HD shows:

- where to find the specific cable type in the relevant part of the HD, and in the British Standard that implements it;
- harmonized designations and, where applicable, national codes;
- constructional details for the cable;
- recommendations for installation (fixed cable types) or conditions and limits of operation (flexible cords and cables);
- recommended temperature limits.

Table B shows, for each generic cable type in the particular part of the HD:

- recommended use;
- comments about limitations and suitability.

NOTE Annex B shows how the table numbers in the cable product standards correspond to the table numbers in this part of BS 7540.

Table 1A — Cables conforming to HD 21.3 — Constructional details, method of installation and temperature

Parameter	Unit	Constructional details, method of installation and temperature					
		HD 21.3:1995, Clause 2 BS 6004:2000, Table 4a H07V-U ^a 649IX ^b	HD 21.3:1995, Clause 2 BS 6004:2000, Table 4a H07V-R ^a 649IX ^b	HD 21.3:1995, Clause 3 BS 6004:2000, Table 4b H07V-K ^a 670IX ^b	HD 21.3:1995, Clause 4 BS 6004:2000, Table 5 H05V-U ^a	HD 21.3:1995, Clause 4 BS 6004:2000, Table 5 H05V-R ^a	HD 21.3:1995, Clause 5 BS 6004:2000, Table 5 H05V-K ^a 249IX ^b
Constructional details							
Nominal voltage rating	V	450/750	450/750	450/750	300/500	300/500	300/500
Conductor class ^c		1	2	5	1	2	5
Number of cores		1	1	1	1	1	1
Cross-sectional area size range	mm ²	1.5 to 10	1.5 to 400	1.5 to 240	0.5 to 1.0	0.5 to 1.0	0.5 to 1.0
Method of installation^d							
In conduit		+	+	+	—	—	—
In cable trunking		+	+	+	+e	+e	+e
In cable ducting		+	+	+	—	—	—
In cable wiring of electric appliances and equipment		+	+	+	+	+	+
Clipped direct		—	—	—	—	—	—
On cable tray		—	—	—	—	—	—
Embedded		—	—	—	—	—	—
Temperature							
Maximum continuous conductor operating ^f	°C	70	70	70	70	70	70
Maximum conductor short circuit ^g	°C	160	160 ^h	160	160	160	160
Maximum cable surface	°C	70	70	70	70	70	40
Maximum storage ⁱ	°C	40	40	40	40	40	40
Minimum installation and handling	°C	5	5	5	5	5	5

"—" = Acceptable

"e" = Not suitable

^a Harmonized code designation.^b CMA code designation.^c Conductor class designations:

1 = solid wire;

2 = stranded;

5 = flexible.

The presence of water in contact with the cable is not acceptable.

^d Signalling and control circuit only.

The maximum conductor temperature at which the particular cable should operate depends upon the limiting temperature of the other cables and accessories with which it is in contact.

Maximum allowable time 5 s.

For conductor sizes above 300 mm² this temperature is reduced to 140 °C.

In direct sunlight the storage temperature of the cable may exceed the value given but subject to a maximum of 60 °C.

Table 1B — Cables conforming to HD 21.3 — Guide to use

Cable type	Standard reference		Recommendations for use	Comments
	HD 21.3:1995	BS 6004:2000		
Single core non-sheathed cables with rigid (solid or stranded) conductor, H07V-U or H07V-R	Clause 2	Table 4a	The cables are suitable for: — installation in surface-mounted or embedded conduits, or similar closed systems.	For voltages up to 1 000 V a.c., or up to 750 V d.c. to earth, the cables are permitted for fixed protected installation in, or on, lighting or controlgear.
	Clause 3	Table 4b		
Single core non-sheathed cables with solid conductor for internal wiring, H05V-U	Clause 4	Table 5	The cables are suitable for: — fixed protected installation inside appliances and in, or on, lighting fittings.	In cable trunking systems, the cables are only permitted for signalling or control circuits.
Single core non-sheathed cables with flexible conductor for internal wiring, H05V-K	Clause 5	Table 5		

Table 2A — Cables conforming to HD 21.5 — Constructional details, method of installation and temperature

Parameter	Unit	Constructional details, method of installation and temperature				
		HD 21.5:1994, Clause 2 BS 6500:2000, Table 24 H03VH-Y ^a	HD 21.5:1994, Clause 4 BS 6500:2000, Table 26 H03VVH2-F ^a 2192Y ^b	HD 21.5:1994, Clause 4 BS 6500:2000, Table 26 H03VV-F ^a 218*Y ^b	HD 21.5:1994, Clause 5 BS 6500:2000, Table 27 ^c H05VV-F ^a 318*Y ^b	HD 21.5:1994, Clause 5 BS 6500:2000, Table 27 H05VVH2-F ^a 3192Y ^b
Constructional details						
Nominal voltage rating	V	300/300	300/300	300/300	300/500	300/500
Conductor class ^d		Tinsel	5	5	5	5
Number of cores		2	2	2 to 4	2 to 5	2
Cross-sectional area size range	mm ²	0.1	0.5 to 0.75	0.5 to 0.75	0.75 to 4	0.75 to 1.0
Duty^a						
Extra light		+	+	+	+	+
Light		—	+	+	+	+
Ordinary		—	—	—	+	+
Heavy		—	—	—	—	—
Presence of water						
Condition AD1		+	+	+	+	+
Condition AD2		—	—	—	+	+
Condition AD6		—	—	—	—	—
Condition AD7		—	—	—	—	—
Condition AD8		—	—	—	—	—
Corrosive or polluting substances condition AF3		—	—	—	+	+
Impact condition AG2		—	—	—	—	—
Vibrations condition AH3		—	—	—	—	—
Flora condition AK2		—	—	—	—	—
Fauna condition AL2		—	—	—	—	—
Solar radiation condition AN2		—	—	—	—	—
Outdoor use^f						
Intermittent and temporary periods of short duration ^g		—	—	—	+	+
Permanent ^g		—	—	—	—	—

Table 2A — Cables conforming to HD 21.5 — Constructional details, method of installation and temperature (*continued*)

Parameter	Unit	Constructional details, method of installation and temperature				
		HD 21.5:1994, Clause 2 BS 6500:2000, Table 24 H03VH-Y ^a	HD 21.5:1994, Clause 4 BS 6500:2000, Table 26 H03VVH2-F ^a 2192Y ^b	HD 21.5:1994, Clause 4 BS 6500:2000, Table 26 H03VV-F ^a 218*Y ^b	HD 21.5:1994, Clause 5 BS 6500:2000, Table 27 ^c H05VV-F ^a 318*Y ^b	HD 21.5:1994, Clause 5 BS 6500:2000, Table 27 H05VVH2-F ^a 3192Y ^b
Flexing and torsion						
Frequent flexing		+	+	+	+	+
Frequent torsion		—	—	+	+	—
Temperature						
Maximum continuous conductor operating	°C	40	60 ^h	60 ^h	60	60
Maximum conductor short circuit ⁱ	°C	150	150	150	150	150
Maximum cable surface	°C	40	50	50	50	50
Maximum storage ^j	°C	40	40	40	40	40
Minimum installation and handling	°C	5	5	5	5	5
“+” = Acceptable						
“—” = Not suitable						
^a Harmonized code designation. ^b CMA code designation. ^c 4 mm ² cables are covered in BS 7919:2001, Table 40. ^d Conductor class designation 5 = flexible ^e See BS 7540-1:2005, Annex D. ^f Only for relevant classification given for duty. ^g See BS 7540-1:2005, Annex C. ^h Cords with cross-sectional area of 0.5 mm ² should be used in lengths not exceeding 2 m and their current should not exceed 3 A. ⁱ Maximum allowable time 5 s. ^j In direct sunlight the storage temperature of the cable may exceed the value given but subject to a maximum of 60 °C.						

Table 2B — Cables conforming to HD 21.5 — Guide to use

Cable type	Standard reference		Recommendations for use	Comments
	HD 21.5:1994	BS 6500:2000		
Flat tinsel cord, H03VH-Y	Clause 2	Table 24	The cables are suitable for: — connecting small hand-held appliances (e.g. electric razors) when authorized by the relevant appliance specifications. The cables are not suitable for: — cooking or heating appliances.	The connection of this cord to appliances should be fixed, or suitable small connectors should be used. The length of the cord should not exceed 2 m with a non-detachable plug at the end. The current should not exceed 0.2 A.
Light PVC sheathed cord, H03VV-F (circular) and H03VVH2-F (flat)	Clause 4	Table 26	The cables are suitable for: — use in domestic premises, kitchens and offices; — light duties; — light portable appliances (e.g. radio sets, table and standard lamps, office machines). The cables are not suitable for: — cooking and space heating appliances; — use in elevated temperature zones in luminaires; — outdoor use, in industrial^a or agricultural buildings; — non-domestic portable tools.	For use in elevated temperature zones in luminaires, cables conforming to HD 21.12:1994, Clause 2 (H03V2V2-F or H03V2V2H2-F) are preferred. For light PVC sheathed cord with cross-section 0.75 mm², the same recommendations for use and comments as for ordinary PVC sheathed cord (HD 21.5:1994, Clause 5) are applicable. Where extra flexibility is required and provided there is no particular danger of mechanical damage, these light cords may be used. If cords are subject to frequent flexing and/or torsion, circular cords are recommended instead of flat ones.
Ordinary PVC sheathed cord, H05VV-F (circular) and H05VVH2-F (flat)	Clause 5	Table 27	The cables are suitable for: — use in domestic premises, kitchens, offices; — household appliances, including in damp premises; — medium duties (e.g. washing machines, spin dryers, and refrigerators); — hand-held inspection lamps (circular cables only). The cables are not suitable for: — outdoor use, in industrial^a or agricultural buildings; — non-domestic portable tools.	Providing that there is no risk of contact with hot parts and the cables are not subjected to radiation, they may be used for cooking and heating appliances, but the use, in these cases, of cables conforming to HD 21.12:1994, Clause 3 is preferred (H05V2V2-F or H05V2V2H2-F).
Admissible, however, in tailors' workshops and similar premises.				

Table 3A — Cables conforming to HD 21.7 — Constructional details, method of installation and temperature

Parameter	Unit	Constructional details, method of installation and temperature					
		HD 21.7:1996, Clause 2 BS 6004:2000, Table 12 H05V2-U ^a 6491X HR ^b	HD 21.7:1996, Clause 2 BS 6004:2000, Table 12 H05V2-R ^a 6491X HR ^b	HD 21.7:1996, Clause 2 BS 6004:2000, Table 12 H05V2-K ^a 2491X HR ^b	HD 21.7:1996, Clause 3 BS 6004:2000, Table 11a H07V2-U ^a 6491X HR ^b	HD 21.7:1996, Clause 3 BS 6004:2000, Table 11a H07V2-R ^a 6491X HR ^b	HD 21.7:1996, Clause 3 BS 6004:2000, Table 11b H07V2-K ^a 6701X HR ^b
Constructional details							
Nominal voltage rating	V	300/500	300/500	300/500	450/750	450/750	450/750
Conductor class ^c		1	2	5	1	2	5
Number of cores		1	1	1	1	1	1
Cross-sectional area size range	mm ²	0.5 to 1.0	0.5 to 1.0	0.5 to 1.0	1.5 to 2.5	1.5 to 35	1.5 to 35
Method of installation^d							
In conduit		—	—	—	+	+	+
In cable trunking		+ ^e	+ ^e	+ ^e	+	+	+
In cable ducting		—	—	—	+	+	+
In cable wiring of electric appliances and equipment		+	+	+	+	+	+
Clipped direct		—	—	—	—	—	—
On cable tray		—	—	—	—	—	—
Embedded		—	—	—	—	—	—
Temperature							
Maximum continuous conductor operating ^f	°C	90	90	90	90	90	90
Maximum conductor short circuit ^g	°C	160	160	160	160	160	160
Maximum cable surface	°C	90	90	90	90	90	90
Maximum storage ^h	°C	40	40	40	40	40	40
Minimum installation and handling	°C	5	5	5	5	5	5
“+” = Acceptable “—” = Not suitable							
^a Harmonized code designation. ^b CMA code designation. ^c Conductor class designations: 1 = solid wire; 2 = stranded; 5 = flexible. ^d The presence of water in contact with the cable is not acceptable. ^e Signalling and control circuit only. ^f The maximum conductor temperature at which the particular cable should operate depends upon the limiting temperature of the other cables and accessories with which it is in contact. Maximum allowable time 5 s. In direct sunlight the storage temperature of the cable may exceed the value given but subject to a maximum of 60 °C.							

Table 3B — Cables conforming to HD 21.7 — Guide to use

Cable type	Standard reference		Recommendations for use	Comments
	HD 21.7:1996	BS 6004:2000		
Single core non-sheathed cables for internal wiring, H05V2-U, H05V2-R or H05V2-K	Clause 2	Table 12	The cables are suitable for: — internal wiring and fixed protected installation inside appliances and in lighting fittings. The cables are not suitable for: — fixed installations in distribution systems.	The maximum conductor temperature in normal use is 90 °C. These cables should not be used in contact with objects higher than 85 °C.
	Clause 3	Table 11a (-U and -R types) Table 11b (-K types)	The cables are suitable for: — internal wiring and fixed protected installation inside appliances and in lighting fittings. The cables are not suitable for: — fixed installations in distribution systems, except where limited to a maximum conductor temperature of 70 °C.	The maximum conductor temperature in normal use is 90 °C. These cables should not be used in contact with objects higher than 85 °C. For voltages up to 1 000 V a.c., or up to 750 V d.c. to earth, the cables are permitted for fixed protected installation in, or on, lighting or controlgear. In cable trunking systems, the cables are only permitted for signalling or control circuits.

Table 4A — Cables conforming to HD 21.9 — Constructional details, method of installation and temperature

Parameter	Unit	Constructional details, method of installation and temperature		
		HD 21.9:1995, Clause 2 BS 6004:2000, Table 10a H07V3-U ^a	HD 21.9:1995, Clause 2 BS 6004:2000, Table 10a H07V3-R ^a	HD 21.9:1995, Clause 3 BS 6004:2000, Table 10b H07V3-K ^a
Constructional details				
Nominal voltage rating	V	450/750	450/750	450/750
Conductor class ^b		1	2	5
Number of cores		1	1	1
Cross-sectional area size range	mm ²	1.5 to 10	1.5 to 630	1.5 to 240
Method of installation^c				
In conduit ^d		+	+	+
In cable trunking ^d		+	+	+
In cable ducting ^d		+	+	+
In cable wiring of electric appliances and equipment		+	+	+
Clipped direct		—	—	—
On cable tray		—	—	—
Embedded		—	—	—
Temperature				
Maximum continuous conductor operating ^e	°C	70	70	70
Maximum conductor short circuit ^f	°C	160	160 ^g	160
Maximum cable surface	°C	70	70	70
Maximum storage ^h	°C	40	40	40
Minimum installation and handling	°C	−25	−25	−25
^a "+" = Acceptable ^a "—" = Not suitable ^a Harmonized code designation. ^b Conductor class designations: 1 = solid wire; 2 = stranded; 5 = flexible. ^c The presence of water in contact with the cable is not acceptable. ^d For installation at low temperatures. ^e The maximum conductor temperature at which the particular cable should operate depends upon the limiting temperature of the other cables and accessories with which it is in contact. ^f Maximum allowable time 5 s. For conductor sizes above 300 mm ² this temperature is reduced to 140 °C. In direct sunlight the storage temperature of the cable may exceed the value given but subject to a maximum of 60 °C.				

Table 4B — Cables conforming to HD 21.9 — Guide to use

Cable type	Standard reference		Recommendations for use	Comments
	HD 21.9:1995	BS 6004:2000		
Non-sheathed cable for installation at low temperature with rigid (solid or stranded) conductor, H07V3-U or H07V3-R	Clause 2	Table 10a	The cables are suitable for: — installation in surface-mounted or embedded conduits, or similar closed systems when installation is carried out in conditions of low ambient temperature.	For voltages up to 1 000 V a.c., or up to 750 V d.c. to earth, the cables are permitted for fixed protected installation in, or on, lighting or controlgear.
Non-sheathed cable for installation at low temperature with flexible conductor, H07V3-K	Clause 3	Table 10b		

Table 5A — Cables conforming to HD 21.10 — Constructional details, method of installation and temperature

Parameter	Unit	Constructional details, method of installation and temperature			
		HD 21.10:2001, Clause 2 BS 6500:2000, Clause 8 H03VVH8- ^{Fa}	HD 21.10:2001, Clause 2 BS 6500:2000, Clause 8 H03VVH2H8- ^{Fa}	HD 21.10:2001, Clause 3 BS 6500:2000, Clause 8 H05VVH8- ^{Fa}	HD 21.10:2001, Clause 3 BS 6500:2000, Clause 8 H05VVH2H8- ^{Fa}
Constructional details					
Nominal voltage rating	V	300/300	300/300	300/500	300/500
Conductor class ^b		5	5	5	5
Number of cores		2 to 3	2	2 to 3	2
Cross-sectional area size range	mm ²	0.5 to 0.75	0.5 to 0.75	0.75 to 1.5	0.75
Duty^c					
Extra light		+	+	+	+
Light		+	+	+	+
Ordinary		—	—	+	+
Heavy		—	—	—	—
Presence of water					
Condition AD1		+	+	+	+
Condition AD2		—	—	+	+
Condition AD6		—	—	—	—
Condition AD7		—	—	—	—
Condition AD8		—	—	—	—
Corrosive or polluting substances condition AF3		—	—	+	+
Impact condition AG2		—	—	—	—
Vibrations condition AH3		—	—	—	—
Flora condition AK2		—	—	—	—
Fauna condition AL2		—	—	—	—
Solar radiation condition AN2		—	—	—	—
Outdoor use^d					
Intermittent and temporary periods of short duration ^e		—	—	+	+
Permanent ^e		—	—	—	—
Bending and torsion					
Frequent flexing		+	+	+	+
Frequent torsion		—	—	—	—

Table 5A — Cables conforming to HD 21.10 Constructional details, method of installation and temperature (continued)

Parameter	Unit	Constructional details, method of installation and temperature			
		HD 21.10:2001, Clause 2 BS 6500:2000, Clause 8 H03VVH8-F ^a	HD 21.10:2001, Clause 2 BS 6500:2000, Clause 8 H03VVH2H8-F ^a	HD 21.10:2001, Clause 3 BS 6500:2000, Clause 8 H05VVH8-F ^a	HD 21.10:2001, Clause 3 BS 6500:2000, Clause 8 H05VVH2H8-F ^a
Temperature					
Maximum continuous conductor operating	°C	60 ^f	60 ^f	60	60
Maximum conductor short circuit ^g	°C	150	150	150	150
Maximum cable surface	°C	50	50	50	50
Maximum storage ^h	°C	40	40	40	40
Minimum installation and handling	°C	5	5	5	5
^a "+" = Acceptable ^b "-" = Not suitable ^a Harmonized code designation. ^b Conductor class designation 5 = flexible. ^c See BS 7540-1:2005, Annex D. ^d Only for relevant classification given for duty. ^e See BS 7540-1:2005, Annex C. ^f Cords with cross-sectional area of 0.5 mm ² should be used in lengths not exceeding 2 m and their current should not exceed 3 A. ^g Maximum allowable time 5 s. ^h In direct sunlight the storage temperature of the cable may exceed the value given but subject to a maximum of 60 °C.					

Table 5B — Cables conforming to HD 21.10 — Guide to use

Cable type	Standard reference		Recommendations for use	Comments
	HD 21.10:2001	BS 6500:2000		
Extensible leads — light duty PVC sheathed types, H03VVH8-F (circular) and H03VVH2H8-F (flat)	Clause 2	Clause 8	The cables are suitable for: — use in domestic premises, kitchens and offices; — light duties; — light portable appliances (e.g. radio sets, table and standard lamps, office machines). The cables are not suitable for: — cooking and space heating appliances; — use in elevated temperature zones in luminaires; — outdoor use, in industrial^a or agricultural buildings; — non-domestic portable tools.	For use in elevated temperature zones in luminaires, cables conforming to HD 21.12:1994, Clause 2 (H03V2V2-F or H03V2V2H2-F) are preferred. For light PVC sheathed cord with cross-section 0.75 mm², the same recommendations for use and comments as for ordinary PVC sheathed cord (HD 21.10:2001, Clause 3) are applicable. Where extra flexibility is required and provided there is no particular danger of mechanical damage, these light cords may be used. If cords are subject to frequent flexing and/or torsion, circular cords are recommended instead of flat ones.
Extensible leads — ordinary duty PVC sheathed types, H05VVH8-F (circular) and H05VVH2H8-F (flat)	Clause 3	Clause 8	The cables are suitable for: — use in domestic premises, kitchens, offices; — household appliances, including in damp premises; — medium duties (e.g. washing machines, spin dryers, and refrigerators); — hand-held inspection lamps (circular cables only). The cables are not suitable for: — outdoor use, in industrial^a or agricultural buildings; — non-domestic portable tools.	Providing that there is no risk of contact with hot parts and the cables are not subjected to radiation, they may be used for cooking and heating appliances, but the use, in these cases, of cables conforming to HD 21.12:1994, Clause 3 is preferred (H05V2V2-F or H05V2V2H2-F).
^a Admissible, however, in tailors' workshops and similar premises.				