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EN 50525-2-22

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Supersedes HD 22.14 S3:2007 (partially)

English version

Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (U_0/U) - Part 2-22: Cables for general applications - High flexibility braided cables with crosslinked elastomeric insulation

Câbles électriques -
Câbles d'énergie basse tension de tension assignée au plus égale à 450/750 V (U_0/U) -
Partie 2-22: Câbles pour applications générales -
Câbles sous tresse à flexibilité élevée isolés en matériau élastomère réticulé

Kabel und Leitungen -
Starkstromleitungen mit Nennspannungen bis 450/750 V (U_0/U) -
Teil 2-22: Starkstromleitungen für allgemeine Anwendungen -
Hochflexible umflochtene Leitungen mit vernetzter Elastomer-Isolierung

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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 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 50525-2-22 on 2011-01-17.

This document, which is one of a multipart series, partially supersedes HD 22.14 S3:2007.

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– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2014-01-17

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Contents

Page
1 Scope 4
2 Normative references 4
3 Terms and definitions 4
4 Flexible cables - H03RT-H 4
4.1 Construction 4
4.2 Requirements 5
Annex A (normative) Tests for cables to EN 50525-2-22 6
Annex B (normative) 7
General data 7
Annex C (normative) 8
Measurement of coverage by textile braid 8
C.1 Terms and definitions 8
C.2 Test methods 8
Bibliography 10

Figures

Figure C.1 — Textile braid 9

Tables

Table A.1 6
Table B.1 7

1 Scope

EN 50525-2-22 applies to crosslinked EPR insulated and textile braided flexible cables.

The cables are of rated voltage U_0/U 300/300 V.

The cables are intended for the connection of domestic appliances to the fixed supply, where an extra flexible connection is required.

The maximum conductor operating temperature for the cables in this standard is 60 °C.

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

This EN 50525-2-22 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 50363-1	Insulating, sheathing and covering materials for low voltage energy cables - Part 1: Cross-linked elastomeric insulating 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)

3 Terms and definitions

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

4 Flexible cables - H03RT-H

4.1 Construction

4.1.1 Conductor

The conductor shall be class 6, according to EN 60228, except that the maximum resistance of conductors at 20 °C shall be increased by 3 %.

4.1.2 Sizes of cable

The sizes of cable shall be:

- 0,75 mm^2 to 1,5 mm^2 – 2 and 3 core.

4.1.3 Insulation

The insulation shall be EPR compound of type EI 4 to EN 50363-1 applied around each conductor.

4.1.4 Fillers

Fillers of textile material shall be incorporated into the cable.

4.1.5 Assembly

The cores and textile fillers shall be twisted together.

The maximum length of lay shall not exceed 7 times the diameter of the assembly of cores.

The direction of lay shall be the same for the conductors and for the cores.

NOTE A centre filler may be used.

4.1.6 Overall textile braid

The assembly of cores and fillers shall be covered by a textile braid:

– Minimum number of threads: 60;

– Minimum crossings per metre: 700;

– Minimum number of carriers: 24.

4.1.7 Marking

The cable shall be marked with the CENELEC code H03RT-H. The marking shall be printed on one of the cores, and shall comply with Clause 6 of EN 50525-1.

4.2 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 requirement for length of lay shall be determined by measuring the length of ten pitches of a sample and dividing this length by 10. The result is the length of lay of the laid-up cores.

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

Annex A
(normative)

Tests for cables to EN 50525-2-22

Table A.1

1	2	3	4	5
Ref. No.	Tests [a]	Category of test	Test method described in	
			EN	(Sub)Clause
1	**Electrical tests** [b]			
1.1	Resistance of conductors	T,S	50395	5
1.2	Voltage test on completed cable at 2 000 V	T,S	50395	6
1.3	Voltage test on cores at 2 000 V	R	50395	7
1.4	Absence of faults on insulation	R	50395	10
2	**Provisions covering constructional and dimensional characteristics**			
2.1	Checking of compliance with constructional provisions	T,S	50525-1	Inspection and manual tests
2.2	Measurement of insulation thickness	T,S	50396	4.1
2.3	Coverage by textile braid	T,S	This EN	Annex C
2.4	Measurement of overall dimensions			
2.4.1	- mean value	T,S	50396	4.4
2.4.2	- ovality	T,S	50396	4.4
2.5	Solderability test (plain conductors)	T	50396	8.2
3	**Insulation material tests**	T	50363-1 [c]	
4	**Mechanical strength of completed cable**			
4.1	Three pulley flexing test	T	50396	6.3
4.2	Kink test	T	50396	6.5
4.3	Wear resistance test	T	50396	6.6
5	**Resistance to heat of textile braid**	T	50396	7.2

[a] The order given does not imply a sequence of testing.

[b] Particular test conditions and requirements are given in Table 1 of EN 50525-1.

[c] This EN includes all the test methods and requirements for the material. Material to be tested is taken from the finished cable.

Annex B
(normative)

General data

NOTE The overall dimensions of cables have been calculated in accordance with EN 60719.

Table B.1

1	2	3	4
Number and nominal cross-sectional area of conductors	**Thickness of insulation**	**Mean overall diameter**	
	Specified value	**Lower limit**	**Upper limit**
mm^2	mm	mm	mm
2 x 0,75	0,8	5,5	7,2
2 x 1	0,8	5,7	7,6
2 x 1,5	0,8	6,2	8,2
3 x 0,75	0,8	5,9	7,7
3 x 1	0,8	6,2	8,1
3 x 1,5	0,8	6,7	8,8

Annex C
(normative)

Measurement of coverage by textile braid

C.1 Terms and definitions

C.1.1
thread
single textile unit which, when combined with others, forms the braid of the cable

C.1.2
carrier
element for the winding of the threads

NOTE Each carrier can contain several threads.

C.1.3
crossing
arrangement of all threads of the carriers in order to provide the braid coverage of the cable

C.2 Test methods

C.2.1 Number of threads

The number of threads shall be calculated by adding up the number of threads in each carrier.

C.2.2 Crossings per metre

The sample of the cable to be tested shall be longitudinally placed, and marked with two reference points, 20 mm apart.

The number of crossings (see Figure C.1) shall be measured and recorded.

Three different evaluations shall be made. The average of them (each one referred to 1 000 mm) is the value of the crossings per metre.

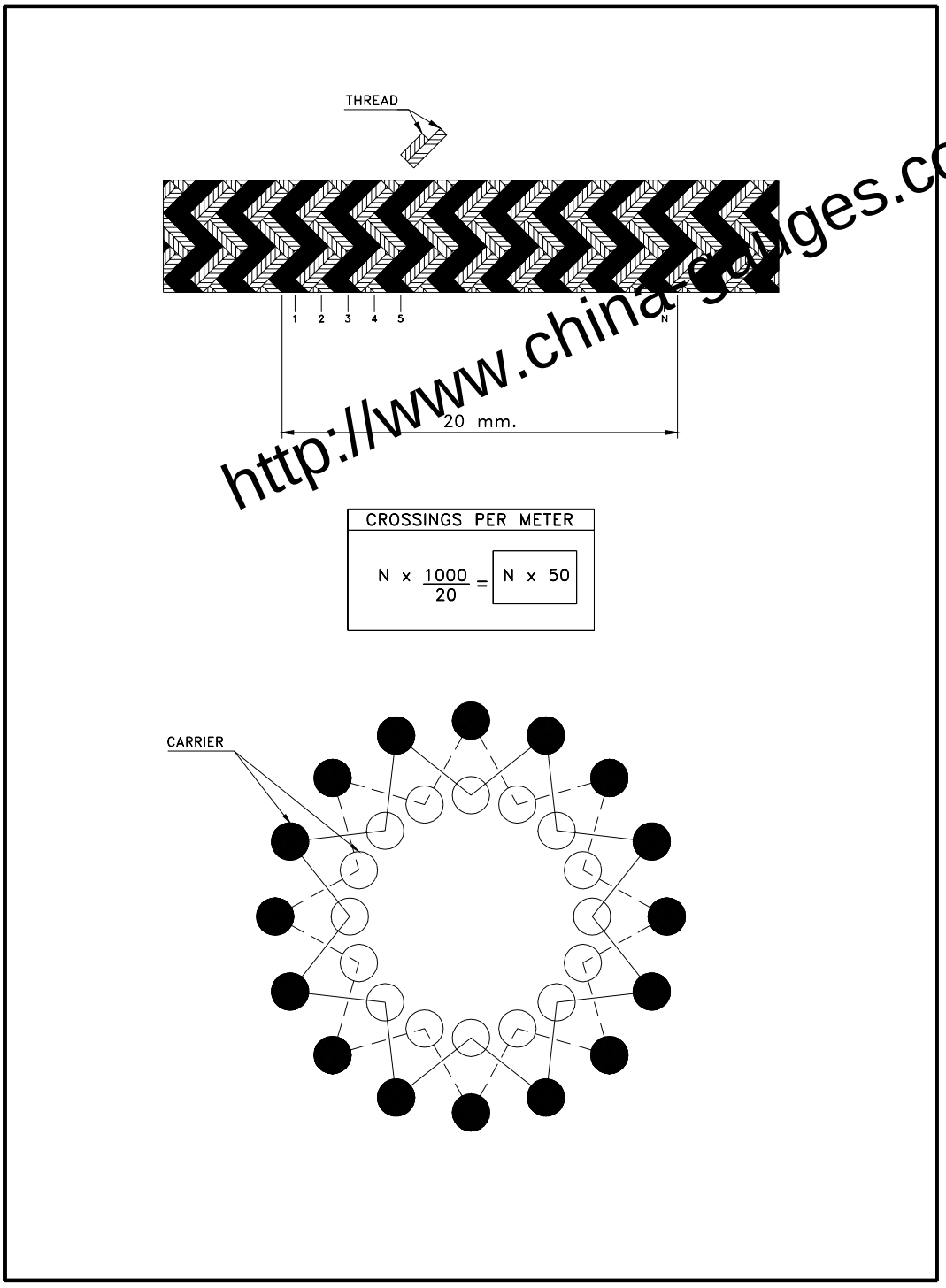

Figure C.1 — Textile braid