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Deuxième édition
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Conducteurs et câbles isolés au polychlorure
de vinyle, de tension nominale au plus égale
à 450/750 V

Partie 4:
Câbles sous gaine pour installations fixes

Polyvinyl chloride insulated cables
of rated voltages up to and including
450/750 V

Part 4:
Sheathed cables for fixed wiring

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International Electrotechnical Commission
Международная Электротехническая Комиссия

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Révision de la présente publication

Le contenu technique des publications de la CEI est constamment revu par la Commission afin d'assurer qu'il reflète bien l'état actuel de la technique.

Les renseignements relatifs à ce travail de révision, à l'établissement des éditions révisées et aux mises à jour peuvent être obtenus auprès des Comités nationaux de la CEI et en consultant les documents ci-dessous:

- Bulletin de la CEI
- Annuaire de la CEI
- Catalogue des publications de la CEI
Publié annuellement

Terminologie

En ce qui concerne la terminologie générale, le lecteur se reportera à la Publication 50 de la CEI: Vocabulaire Electrotechnique International (VEI), qui est établie sous forme de chapitres séparés traitant chacun d'un sujet défini, l'Index général étant publié séparément. Des détails complets sur le VEI peuvent être obtenus sur demande.

Les termes et définitions figurant dans la présente publication ont été soit repris du VEI, soit spécifiquement approuvés aux fins de cette publication.

Symboles graphiques et littéraux

Pour les symboles graphiques, symboles littéraux et signes d'usage général approuvés par la CEI, le lecteur consultera:

- la Publication 27 de la CEI: Symboles littéraux à utiliser en électrotechnique;
- la Publication 617 de la CEI: Symboles graphiques pour schémas.

Les symboles et signes contenus dans la présente publication ont été soit repris des Publications 27 ou 617 de la CEI, soit spécifiquement approuvés aux fins de cette publication.

Publications de la CEI établies par le même Comité d'Etudes

L'attention du lecteur est attirée sur le deuxième feuillet de la couverture, qui énumère les publications de la CEI préparées par le Comité d'Etudes qui a établi la présente publication.

Revision of this publication

The technical content of IEC publications is kept up to date by constant review by the IEC, thus ensuring that the content reflects current technology.

Information on the work of revision, the issue of revisions and amendment sheets may be obtained from IEC Committees and from the following IEC sources:

- IEC Bulletin
- IEC Yearbook
- Catalogue of IEC Publications
Published yearly

Terminology

For general terminology, readers are referred to Publication 50: International Electrotechnical Vocabulary (IEV) which is issued in the form of separate chapters each dealing with a specific field, the General Index being published as a separate booklet. Full details of the IEV will be supplied on request.

The terms and definitions contained in the present publication have either been taken from the IEV or have been specifically approved for the purpose of this publication.

Graphical and letter symbols

For graphical symbols, and letter symbols and signs of general use, readers are referred to:

- IEC Publication 27: Letter symbols to be used in electrotechnology;
- IEC Publication 617: Graphical symbols for diagrams.

The symbols and signs contained in the present publication have either been taken from IEC Publications 27 or 617 or have been specifically approved for the purpose of this publication.

IEC publications prepared by the same Technical Committee

The attention of readers is drawn to the back cover, which lists the IEC publications issued by the Technical Committee which prepared the present publication.

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**POLYVINYL CHLORIDE INSULATED CABLES
OF RATED VOLTAGES UP TO AND INCLUDING 450/750 V****Part 4: Sheathed cables for fixed wiring**

FOREWORD

- 1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
- 3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.
- 4) The IEC has not laid down any procedure concerning marking as an indication of approval and has no responsibility when an item of equipment is declared to comply with one of its recommendations.

This part of International Standard IEC 227 has been prepared by Sub-Committee 20B: Low-voltage cables, of IEC Technical Committee No. 20: Electric cables.

It forms part 4: Sheathed cables for fixed wiring, of IEC 227: Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V. The other parts of the complete standard are:

- Part 1: General requirements, issued as IEC 227-1;
- Part 2: Test methods, issued as IEC 227-2;
- Part 3: Non-sheathed cables for fixed wiring, issued as IEC 227-3;
- Part 5: Flexible cables (cords), issued as IEC 227-5;
- Part 6: Lift cables and cables for flexible connections, issued as IEC 227-6.

This part, in conjunction with parts 1 and 2, forms the complete standard for sheathed cables for fixed wiring.

This second edition of IEC 227-4 replaces the first edition issued in 1979.

The text of this part is based on that of the first edition and on the following documents:

Six Months' Rule	Report on Voting
20B(CO)112	20B(CO)122

Full information on the voting for the approval of this part can be found in the Voting Report indicated in the above table.

POLYVINYL CHLORIDE INSULATED CABLES OF RATED VOLTAGES UP TO AND INCLUDING 450/750 V

Part 4: Sheathed cables for fixed wiring

1 General

1.1 Scope

This part of IEC 227 details the particular specification for light polyvinyl chloride sheathed cables of rated voltage of 300/500 V.

Each cable shall comply with the appropriate requirements given in IEC 227-1 and the particular requirements of this part.

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 227. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of IEC 227 are encouraged to investigate the possibility of applying the most recent editions of the normative documents listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 228: 1978, *Conductors of insulated cables*.

IEC 332-1: 1979, *Tests on electric cables under fire conditions - Part 1: Test on a single vertical insulated wire or cable*.

IEC 811-1-1: 1985, *Common test methods for insulating and sheathing materials of electric cables - Part 1: Methods for general application - Section One: Measuring of thickness and overall dimensions - Tests for determining the mechanical properties*.

Amendment 1 (1988). Amendment 2 (1989).

IEC 811-1-2: 1985, *Common test methods for insulating and sheathing materials of electric cables - Part 1: Methods for general application - Section Two: Thermal ageing methods*.

Amendment 1 (1989).

IEC 811-1-4: 1985, *Common test methods for insulating and sheathing materials of electric cables - Part 1: Methods for general application - Section Four: Tests at low temperature*.

IEC 811-3-1: 1985, *Common test methods for insulating and sheathing materials of electric cables - Part 3: Methods specific to PVC compounds - Section One: Pressure test at high temperature - Tests for resistance to cracking*.

IEC 811-3-2: 1985, *Common test methods for insulating and sheathing materials of electric cables - Part 3: Methods specific to PVC compounds - Section Two: Loss of mass test - Thermal stability tests.*

2 Light polyvinyl chloride sheathed cable

2.1 Code designation

227 IEC 10.

2.2 Rated voltage

300/500 V.

2.3 Construction

2.3.1 Conductor

Number of conductors: 2, 3, 4 or 5.

The conductors shall comply with the requirements of IEC 228:

- class 1 for solid conductors;
- class 2 for stranded conductors.

2.3.2 Insulation

The insulation shall be polyvinyl chloride compound of type PVC/C applied around each conductor.

The insulation thickness shall comply with the specified value given in table 1, column 3.

The insulation resistance shall be not less than the value given in table 1, column 8.

2.3.3 Assembly of cores

The cores shall be twisted together.

2.3.4 Inner covering

The twisted cores shall be covered by an extruded inner covering consisting of an unvulcanized rubber or plastic compound.

It shall be possible to separate the cores easily.

2.3.5 Sheath

The sheath shall be polyvinyl chloride compound of type PVC/ST 4 applied around the inner covering.

It shall fit closely and shall be capable of being removed without damage to the inner covering.

The sheath thickness shall comply with the specified value given in table 1, column 5.

2.3.6 Overall diameter

The mean overall diameter shall be within the limits given in table 1, columns 6 and 7.

2.4 Tests

Compliance with the requirements of 2.3 shall be checked by inspection and by the tests given in table 2.

2.5 Guide to use

Maximum conductor temperature in normal use: 70 °C.

NOTE - Other guidelines are under consideration.

Table 1 - General data for type 227 IEC 10

1	2	3	4	5	6		7	8
Number and nominal cross-sectional area of conductors mm ²	Class of conductor IEC 228	Insulation thickness Specified value mm	Thickness of inner covering Approximate value mm	Thickness of sheath Specified value mm	Mean overall diameter		Minimum insulation resistance at 70 °C MΩ.km	
					Lower limit mm	Upper limit mm		
2 x 1,5	1	0,7	0,4	1,2	7,6	10,0	0,011	
	2	0,7	0,4	1,2	7,8	10,5	0,010	
2 x 2,5	1	0,8	0,4	1,2	8,6	11,5	0,010	
	2	0,8	0,4	1,2	9,0	12,0	0,009	
2 x 4	1	0,8	0,4	1,2	9,6	12,5	0,0085	
	2	0,8	0,4	1,2	10,0	13,0	0,0077	
2 x 6	1	0,8	0,4	1,2	10,5	13,5	0,0070	
	2	0,8	0,4	1,2	11,0	14,0	0,0065	
2 x 10	1	1,0	0,6	1,4	13,0	16,5	0,0070	
	2	1,0	0,6	1,4	13,5	17,5	0,0065	
2 x 16	2	1,0	0,6	1,4	15,5	20,0	0,0052	
	2	1,2	0,8	1,4	18,5	24,0	0,0050	
2 x 25	2	1,2	1,0	1,6	21,0	27,5	0,0044	
	2	1,2	1,0	1,6	21,0	27,5	0,0044	
3 x 1,5	1	0,7	0,4	1,2	8,0	10,5	0,011	
	2	0,7	0,4	1,2	8,2	11,0	0,010	
3 x 2,5	1	0,8	0,4	1,2	9,2	12,0	0,010	
	2	0,8	0,4	1,2	9,4	12,5	0,009	
3 x 4	1	0,8	0,4	1,2	10,0	13,0	0,0085	
	2	0,8	0,4	1,2	10,5	13,5	0,0077	
3 x 6	1	0,8	0,4	1,4	11,5	14,5	0,0070	
	2	0,8	0,4	1,4	12,0	15,5	0,0065	
3 x 10	1	1,0	0,6	1,4	14,0	17,5	0,0070	
	2	1,0	0,6	1,4	14,5	19,0	0,0065	
3 x 16	2	1,0	0,8	1,4	16,5	21,5	0,0052	
	2	1,2	0,8	1,6	20,5	26,0	0,0050	
3 x 25	2	1,2	1,0	1,6	22,0	29,0	0,0044	
	2	1,2	1,0	1,6	22,0	29,0	0,0044	
4 x 1,5	1	0,7	0,4	1,2	8,6	11,5	0,011	
	2	0,7	0,4	1,2	9,0	12,0	0,010	
4 x 2,5	1	0,8	0,4	1,2	10,0	13,0	0,010	
	2	0,8	0,4	1,2	10,0	13,5	0,009	
4 x 4	1	0,8	0,4	1,4	11,5	14,5	0,0085	
	2	0,8	0,4	1,4	12,0	15,0	0,0077	
4 x 6	1	0,8	0,6	1,4	12,5	16,0	0,0070	
	2	0,8	0,6	1,4	13,0	17,0	0,0065	
4 x 10	1	1,0	0,6	1,4	15,5	19,0	0,0070	
	2	1,0	0,6	1,4	16,0	20,5	0,0065	
4 x 16	2	1,0	0,8	1,4	18,0	23,5	0,0052	
	2	1,2	1,0	1,6	22,5	28,5	0,0050	
4 x 25	2	1,2	1,0	1,6	24,5	32,0	0,0044	
	2	1,2	1,0	1,6	24,5	32,0	0,0044	
5 x 1,5	1	0,7	0,4	1,2	9,4	12,0	0,011	
	2	0,7	0,4	1,2	9,8	12,5	0,010	
5 x 2,5	1	0,8	0,4	1,2	11,0	14,0	0,010	
	2	0,8	0,4	1,2	11,0	14,5	0,009	
5 x 4	1	0,8	0,6	1,4	12,5	16,0	0,0085	
	2	0,8	0,6	1,4	13,0	17,0	0,0077	
5 x 6	1	0,8	0,6	1,4	13,5	17,5	0,0070	
	2	0,8	0,6	1,4	14,5	18,5	0,0065	
5 x 10	1	1,0	0,6	1,4	17,0	21,0	0,0070	
	2	1,0	0,6	1,4	17,5	22,0	0,0065	
5 x 16	2	1,0	0,8	1,6	20,5	26,0	0,0052	
	2	1,2	1,0	1,6	24,5	31,5	0,0050	
5 x 25	2	1,2	1,0	1,6	24,5	31,5	0,0050	
	2	1,2	1,2	1,6	27,0	35,0	0,0044	

Table 2 - Tests for type 227 IEC 10

1	2	3	4	
Ref. No.	Test	Category of test	Test method described in:	
			IEC Publication	Subclause
1.	<i>Electrical tests</i>			
1.1	Resistance of conductors	T, S	227-2	2.1
1.2	Voltage test on cores at 2000 V	T	227-2	2.3
1.3	Voltage test on completed cable at 2 000 V	T, S	227-2	2.2
1.4	Insulation resistance at 70 °C	T	227-2	2.4
2.	<i>Provisions covering constructional and dimensional characteristics</i>		227-1 and 227-2	
2.1	Checking of compliance with constructional provisions	T, S	227-1	Inspection and manual tests
2.2	Measurement of insulation thickness	T, S	227-2	1.9
2.3	Measurement of sheath thickness	T, S	227-2	1.10
2.4	Measurement of overall diameter:			
2.4.1	Mean value	T, S	227-2	1.11
2.4.2	Ovality	T, S	227-2	1.11
3.	<i>Mechanical properties of insulation</i>			
3.1	Tensile test before ageing	T	811-1-1	9.1
3.2	Tensile test after ageing	T	811-1-2	8.1.3
3.3	Loss of mass test	T	811-3-2	8.1
4	<i>Mechanical properties of sheath</i>			
4.1	Tensile test before ageing	T	811-1-1	9.2
4.2	Tensile test after ageing	T	811-1-2	8.1.3
4.3	Loss of mass test	T	811-3-2	8.2
5.	<i>Test of non-contamination</i>	T	811-1-2	8.1.4
6.	<i>Pressure test at high temperature</i>			
6.1	Insulation	T	811-3-1	8.1
6.2	Sheath	T	811-3-1	8.2
7.	<i>Elasticity and impact strength at low temperature</i>			
7.1	Bending test for insulation at low temperature	T	811-1-4	8.1
7.2	Bending test for sheath at low temperature	T	811-1-4	8.2
7.3	Elongation test for sheath at low temperature ¹	T	811-1-4	8.4
7.4	Impact test on completed cable at low temperature	T	811-1-4	8.5
8.	<i>Heat shock test</i>			
8.1	Insulation	T	811-3-1	9.1
8.2	Sheath	T	811-3-1	9.2
9.	<i>Test of flame retardance</i>	T	332-1	

¹ Only applicable if the overall diameter of the cable exceeds the limit specified in the test method.

**NORME
INTERNATIONALE
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STANDARD**

**CEI
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60227-4**

**Edition 2.1
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Edition 2:1992 consolidée par l'amendement 1:1997
Edition 2:1992 consolidated with Amendment 1:1997

**Conducteurs et câbles isolés au polychlorure
de vinyle, de tension nominale au plus égale
à 450/750 V –**

**Partie 4:
Câbles sous gaine pour installations fixes**

**Polyvinyl chloride insulated cables
of rated voltages up to and including
450/750 V –**

**Part 4:
Sheathed cables for fixed wiring**

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**POLYVINYL CHLORIDE INSULATED CABLES
OF RATED VOLTAGES UP TO AND INCLUDING 450/750 V -****Part 4: Sheathed cables for fixed wiring**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international cooperation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all of such patent rights.

This part of International Standard IEC 60227 has been prepared by sub-committee 20B: Low-voltage cables, of IEC technical committee 20: Electric cables.

This consolidated version of IEC 60227-4 is based on the second edition (1992) [documents 20B(CO)112 and 20B(CO)122] and its amendment 1 (1997) [documents 20B/227/FDIS and 20B/242/RVD].

It bears the edition number 2.1.

A vertical line in the margin shows where the base publication has been modified by amendment 1.

It forms part 4: Sheathed cables for fixed wiring, of IEC 60227: *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V*. The other parts of the complete standard are:

- Part 1: General requirements, issued as IEC 60227-1;
- Part 2: Test methods, issued as IEC 60227-2;
- Part 3: Non-sheathed cables for fixed wiring, issued as IEC 60227-3;
- Part 5: Flexible cables (cords), issued as IEC 60227-5;
- Part 6: Lift cables and cables for flexible connections, issued as IEC 60227-6;
- Part 7: Flexible cables screened and unscreened with two or more conductors, issued as IEC 60227-7.

This part, in conjunction with parts 1 and 2, forms the complete standard for sheathed cables for fixed wiring.

This second edition of IEC 60227-4 replaces the first edition issued in 1979.

POLYVINYL CHLORIDE INSULATED CABLES OF RATED VOLTAGES UP TO AND INCLUDING 450/750 V -

Part 4: Sheathed cables for fixed wiring

1 General

1.1 Scope

This part of IEC 60227 details the particular specification for light polyvinyl chloride sheathed cables of rated voltage of 300/500 V.

Each cable shall comply with the appropriate requirements given in IEC 60227-1 and the particular requirements of this part.

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 60227. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of IEC 60227 are encouraged to investigate the possibility of applying the most recent editions of the normative documents listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60228:1978, *Conductors of insulated cables*

IEC 60332-1:1979, *Tests on electric cables under fire conditions - Part 1: Test on a single vertical insulated wire or cable*

IEC 60719:1992, *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 450/750 V*

IEC 60811-1-1:1985, *Common test methods for insulating and sheathing materials of electric cables - Part 1: Methods for general application - Section One: Measuring of thickness and overall dimensions - Tests for determining the mechanical properties*
Amendment 1 (1988). Amendment 2 (1989).

IEC 60811-1-2:1985, *Common test methods for insulating and sheathing materials of electric cables - Part 1: Methods for general application - Section Two: Thermal ageing methods*
Amendment 1 (1989).

IEC 60811-1-4:1985, *Common test methods for insulating and sheathing materials of electric cables - Part 1: Methods for general application - Section Four: Tests at low temperature*

IEC 60811-3-1:1985, *Common test methods for insulating and sheathing materials of electric cables – Part 3: Methods specific to PVC compounds – Section One: Pressure test at high temperature – Tests for resistance to cracking*

IEC 60811-3-2:1985, *Common test methods for insulating and sheathing materials of electric cables – Part 3: Methods specific to PVC compounds – Section Two: Loss of mass test – Thermal stability tests.*

2 Light polyvinyl chloride sheathed cable

2.1 Code designation

60227 IEC 10.

2.2 Rated voltage

300/500 V.

2.3 Construction

2.3.1 Conductor

Number of conductors: 2, 3, 4 or 5.

The conductors shall comply with the requirements of IEC 60228:

- class 1 for solid conductors;
- class 2 for stranded conductors.

2.3.2 Insulation

The insulation shall be polyvinyl chloride compound of type PVC/C applied around each conductor.

The insulation thickness shall comply with the specified value given in table 1, column 3.

The insulation resistance shall be not less than the value given in table 1, column 8.

2.3.3 Assembly of cores

The cores shall be twisted together.

2.3.4 Inner covering

The twisted cores shall be covered by an extruded inner covering consisting of an unvulcanized rubber or plastic compound.

It shall be possible to separate the cores easily.

2.3.5 Sheath

The sheath shall be polyvinyl chloride compound of type PVC/ST 4 applied around the inner covering.

It shall fit closely and shall be capable of being removed without damage to the inner covering.

The sheath thickness shall comply with the specified value given in table 1, column 5.

2.3.6 Overall diameter

The mean overall diameter shall be within the limits given in table 1, columns 6 and 7.

2.4 Tests

Compliance with the requirements of 2.3 shall be checked by inspection and by the tests given in table 2.

2.5 Guide to use

Maximum conductor temperature in normal use: 70 °C.

NOTE - Other guidelines are under consideration.

Table 1 - General data for type 60227 IEC 10

1	2	3	4	5	6		7	8
					Lower limit	Upper limit		
Number and nominal cross-sectional area of conductors mm ²	Class of conductor IEC 60228	Insulation thickness Specified value mm	Thickness of inner covering Approximate value mm	Thickness of sheath Specified value mm	Mean overall diameter		Minimum insulation resistance at 70 °C MΩ.km	
					Lower limit mm	Upper limit mm		
2 x 1,5	1	0,7	0,4	1,2	7,6	10,0	0,011	
	2	0,7	0,4	1,2	7,8	10,5	0,010	
2 x 2,5	1	0,8	0,4	1,2	8,6	11,5	0,010	
	2	0,8	0,4	1,2	9,0	12,0	0,009	
2 x 4	1	0,8	0,4	1,2	9,6	12,5	0,0085	
	2	0,8	0,4	1,2	10,0	13,0	0,0077	
2 x 6	1	0,8	0,4	1,2	10,5	13,5	0,0070	
	2	0,8	0,4	1,2	11,0	14,0	0,0065	
2 x 10	1	1,0	0,6	1,4	13,0	16,5	0,0070	
	2	1,0	0,6	1,4	13,5	17,5	0,0065	
2 x 16	2	1,0	0,6	1,4	15,5	20,0	0,0052	
	2	1,2	0,8	1,4	18,5	24,0	0,0050	
2 x 25	2	1,2	1,0	1,6	21,0	27,5	0,0044	
2 x 35	2	1,2	1,0	1,6	21,0	27,5	0,0044	
3 x 1,5	1	0,7	0,4	1,2	8,0	10,5	0,011	
	2	0,7	0,4	1,2	8,2	11,0	0,010	
3 x 2,5	1	0,8	0,4	1,2	9,2	12,0	0,010	
	2	0,8	0,4	1,2	9,4	12,5	0,009	
3 x 4	1	0,8	0,4	1,2	10,0	13,0	0,0085	
	2	0,8	0,4	1,2	10,5	13,5	0,0077	
3 x 6	1	0,8	0,4	1,4	11,5	14,5	0,0070	
	2	0,8	0,4	1,4	12,0	15,5	0,0065	
3 x 10	1	1,0	0,6	1,4	14,0	17,5	0,0070	
	2	1,0	0,6	1,4	14,5	19,0	0,0065	
3 x 16	2	1,0	0,8	1,4	16,5	21,5	0,0052	
	2	1,2	0,8	1,6	20,5	26,0	0,0050	
3 x 25	2	1,2	1,0	1,6	22,0	29,0	0,0044	
3 x 35	2	1,2	1,0	1,6	22,0	29,0	0,0044	
4 x 1,5	1	0,7	0,4	1,2	8,6	11,5	0,011	
	2	0,7	0,4	1,2	9,0	12,0	0,010	
4 x 2,5	1	0,8	0,4	1,2	10,0	13,0	0,010	
	2	0,8	0,4	1,2	10,0	13,5	0,009	
4 x 4	1	0,8	0,4	1,4	11,5	14,5	0,0085	
	2	0,8	0,4	1,4	12,0	15,0	0,0077	
4 x 6	1	0,8	0,6	1,4	12,5	16,0	0,0070	
	2	0,8	0,6	1,4	13,0	17,0	0,0065	
4 x 10	1	1,0	0,6	1,4	15,5	19,0	0,0070	
	2	1,0	0,6	1,4	16,0	20,5	0,0065	
4 x 16	2	1,0	0,8	1,4	18,0	23,5	0,0052	
	2	1,2	1,0	1,6	22,5	28,5	0,0050	
4 x 25	2	1,2	1,0	1,6	24,5	32,0	0,0044	
4 x 35	2	1,2	1,0	1,6	24,5	32,0	0,0044	
5 x 1,5	1	0,7	0,4	1,2	9,4	12,0	0,011	
	2	0,7	0,4	1,2	9,8	12,5	0,010	
5 x 2,5	1	0,8	0,4	1,2	11,0	14,0	0,010	
	2	0,8	0,4	1,2	11,0	14,5	0,009	
5 x 4	1	0,8	0,6	1,4	12,5	16,0	0,0085	
	2	0,8	0,6	1,4	13,0	17,0	0,0077	
5 x 6	1	0,8	0,6	1,4	13,5	17,5	0,0070	
	2	0,8	0,6	1,4	14,5	18,5	0,0065	
5 x 10	1	1,0	0,6	1,4	17,0	21,0	0,0070	
	2	1,0	0,6	1,4	17,5	22,0	0,0065	
5 x 16	2	1,0	0,8	1,6	20,5	26,0	0,0052	
	2	1,2	1,0	1,6	24,5	31,5	0,0050	
5 x 25	2	1,2	1,0	1,6	24,5	31,5	0,0050	
5 x 35	2	1,2	1,2	1,6	27,0	35,0	0,0044	

NOTE - The lower and upper limits of the mean overall diameter are not calculated in accordance with IEC 60719:1992.

Table 2 - Tests for type 60227 IEC 10

1	2	3	4	
Ref. No.	Test	Category of test	Test method described in:	
			IEC Publication	Subclause
1.	<i>Electrical tests</i>			
1.1	Resistance of conductors	T, S	60227-2	2.1
1.2	Voltage test on cores at 2000 V	T	60227-2	2.3
1.3	Voltage test on completed cable at 2 000 V			
1.4	Insulation resistance at 70 °C	T, S T	60227-2 60227-2	2.2 2.4
2.	<i>Provisions covering constructional and dimensional characteristics</i>		60227-1 and 60227-2	
2.1	Checking of compliance with constructional provisions	T, S	60227-1	Inspection and manual tests
2.2	Measurement of insulation thickness	T, S	60227-2	1.9
2.3	Measurement of sheath thickness	T, S	60227-2	1.10
2.4	Measurement of overall diameter:			
2.4.1	Mean value	T, S	60227-2	1.11
2.4.2	Ovality	T, S	60227-2	1.11
3.	<i>Mechanical properties of insulation</i>			
3.1	Tensile test before ageing	T	60811-1-1	9.1
3.2	Tensile test after ageing	T	60811-1-2	8.1.3
3.3	Loss of mass test	T	60811-3-2	8.1
4	<i>Mechanical properties of sheath</i>			
4.1	Tensile test before ageing	T	60811-1-1	9.2
4.2	Tensile test after ageing	T	60811-1-2	8.1.3
4.3	Loss of mass test	T	60811-3-2	8.2
5.	<i>Test of non-contamination</i>	T	60811-1-2	8.1.4
6.	<i>Pressure test at high temperature</i>			
6.1	Insulation	T	60811-3-1	8.1
6.2	Sheath	T	60811-3-1	8.2
7.	<i>Elasticity and impact strength at low temperature</i>			
7.1	Bending test for insulation at low temperature	T	60811-1-4	8.1
7.2	Bending test for sheath at low temperature	T	60811-1-4	8.2
7.3	Elongation test for sheath at low temperature ¹	T	60811-1-4	8.4
7.4	Impact test on completed cable at low temperature	T	60811-1-4	8.5
8.	<i>Heat shock test</i>			
8.1	Insulation	T	60811-3-1	9.1
8.2	Sheath	T	60811-3-1	9.2
9.	<i>Test of flame retardance</i>	T	60332-1	

¹ Only applicable if the overall diameter of the cable exceeds the limit specified in the test method.