IEC 60245-4

Edition 4.0 2026-04

INTERNATIONAL STANDARD

REDLINE VERSION

Rubber insulated cables - Rated voltages up to and including 450/750 V - Part 4: Cords and flexible cables

ICS 29.060.20

ISBN 978-2-8327-1207-8

THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2026 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

IEC Secretariat
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC
The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications
The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform
The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, …). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished
Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc
If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch
Discover our powerful search engine and read freely all the publications previews, graphical symbols and the glossary. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org
The world's leading online dictionary on electrotechnology, containing more than 22 500 terminological entries in English and French, with equivalent terms in 25 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

FOREWORD 3
~~1 General~~ .....
~~1.~~1 Scope 5
~~1.~~2 Normative references 5
3 Terms and definitions 6
~~2~~4 Braided cord 7
~~3~~5 Ordinary tough rubber sheathed cord 7
~~3~~5.1 Code designation 7
~~3~~5.2 Rated voltage 7
~~3~~5.3 Construction 7
~~3~~5.3.1 Conductors 7
~~3~~5.3.2 Separator 7
~~3~~5.3.3 Insulation 7
~~3~~5.3.4 Assembly of cores and filler, if any 7
~~3~~5.3.5 Sheath 8
~~3~~5.3.6 Overall diameter 8
~~3~~5.4 Tests 8
~~3~~5.5 ~~Guide to use~~Guidance on use of the cables 8
~~4~~6 Ordinary polychloroprene or other equivalent synthetic elastomer sheathed cord 11
~~4~~6.1 Code designation 11
~~4~~6.2 Rated voltage 11
~~4~~6.3 Construction 11
~~4~~6.3.1 Conductors 11
~~4~~6.3.2 Separator 11
~~4~~6.3.3 Insulation 11
~~4~~6.3.4 Assembly of cores and filler, if any 11
~~4~~6.3.5 Sheath 11
~~4~~6.3.6 Overall diameter 12
~~4~~6.4 Tests 12
6.4.1 General 12
6.4.2 Flexing test 12
~~4~~6.5 Guidance on use of the cables 12
~~5~~7 Heavy polychloroprene or other equivalent synthetic elastomer sheathed flexible cable 15
~~5~~7.1 Code designation 15
~~5~~7.2 Rated voltage 15
~~5~~7.3 Construction 15
~~5~~7.3.1 Conductors 15
~~5~~7.3.2 Separator 15
~~5~~7.3.3 Insulation 15
~~5~~7.3.4 Proofed textile tape 15
~~5~~7.3.5 Assembly of cores and filler, if any 15
~~5~~7.3.6 Sheath 16
~~5~~7.3.7 Overall diameter 16
~~5~~7.4 Tests 16
~~5~~7.5 ~~Guide to use~~Guidance on use of cables 17

~~6~~8 Polychloroprene or equivalent synthetic elastomer sheathed cable for decorative chains 20
~~6~~8.1 Code designation 20
~~6~~8.2 Rated voltage 20
~~6~~8.3 Construction 20
~~6~~8.3.1 Conductors 20
~~6~~8.3.2 Separator 20
~~6~~8.3.3 Insulation 20
~~6~~8.3.4 Assembly of cores 20
~~6~~8.3.5 Sheath 20
~~6~~8.3.6 Overall dimensions 21
~~6~~8.4 Tests 21
8.4.1 General 21
8.4.2 Flexing test 21
~~6~~8.5 ~~Guide~~Guidance to use 21
Bibliography 23

Table 1 – Dimensions of type 60245 IEC 53 9
Table 2 – Tests for type 60245 IEC 53 10
Table 3 – Dimensions of type 60245 IEC 57 13
Table 4 – Tests for type 60245 IEC 57 14
Table 5 – Dimensions of type 60245 IEC 66 17
Table 6 – Tests for type 60245 IEC 66 19
Table 7 – Dimensions of type 60245 IEC 58 and 60245 IEC 58f 21
Table 8 – Tests for the types 60245 IEC 58 and 60245 IEC 58f 22

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

Rubber insulated cables - Rated voltages up to and including 450/750 V - Part 4: Cords and flexible cables

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). 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. 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 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 IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at https://patents.iec.ch. IEC shall not be held responsible for identifying any or all such patent rights.

This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 60245-4:2011. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

International Standard IEC 60245-4 has been prepared by IEC technical committee TC 20: Electric cables. It is an International Standard.

This fourth edition of IEC 60245-4 cancels and replaces the third edition published in 2011. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) reference to tests according to IEC 60245-2 has been deleted and replaced by IEC 63294;

b) normative references have been updated.

The text of this International Standard is based on the following documents:

Draft	Report on voting
20/2273/FDIS	20/2282/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

This document is to be used in conjunction with IEC 60245-1:2026.

A list of all the parts in the IEC 60245 series, published under the general title *Rubber insulated cables - Rated voltages up to and including 450/750 V*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

– reconfirmed,

– withdrawn, or

– revised.

~~1 General~~

~~1.~~1 Scope

This part of IEC 60245 defines the particular ~~specifications~~ requirements for rubber insulated and braided cords and for rubber insulated and rubber or polychloroprene or other equivalent synthetic elastomer sheathed cords and flexible cables of rated voltages up to and including 450/750 V which apply in addition to the general requirements specified in IEC 60245-1, which apply to all cables.

~~All cables should comply with the appropriate requirements given in IEC 60245-1 and the individual types of cables should each comply with the particular requirements of this part.~~

The tests for cables specified in the IEC 60245 series are described in IEC 63294.

~~1.~~2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 The IEC 60811 series is currently undergoing a revision, which will lead to a restructuring of its parts. A description of this, as well as a cross-reference table between the current and planned parts will be given in IEC 60811-100.~~

IEC 60228, *Conductors of insulated cables*

IEC 60245-1:~~2003~~2026, *Rubber insulated cables - Rated voltages up to and including 450/750 V - Part 1: General requirements*
~~Amendment 1:2007~~

~~IEC 60245-2:1994, *Rubber insulated cables – Rated voltages up to and including 450/750 V – Part 2: Test methods*~~
~~Amendment 1:1997~~
~~Amendment 2:1997~~

IEC 60245-8:~~1998~~2026, *Rubber insulated cables - Rated voltages up to and including 450/750 V - Part 8: Cords for applications requiring high flexibility*
~~Amendment 1:2004~~
~~Amendment 2:2011~~

~~IEC 60811-1-1:1993, *Common Test methods for insulating and sheathing materials of electric cables and optical cables – Part 1-1: Methods for general application – Measurement of thickness and overall dimensions – Tests for determining the mechanical properties*~~
~~Amendment 1:2001~~

~~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~~
~~Amendment 2:2000~~

~~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*~~
~~Amendment 1:1993~~
~~Amendment 2:2001~~

~~IEC 60811-2-1:1998, *Insulating and sheathing materials of electric and optical cables – Common test methods – Part 2-1: Methods specific to elastomeric compounds – Ozone resistance, hot set and mineral oil immersion tests*~~
~~Amendment 1:2001~~

IEC 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 450/750 V*

IEC 60811-401, *Electric and optical fibre cables - Test methods for non-metallic materials - Part 401: Miscellaneous tests - Thermal ageing methods - Ageing in an air oven*

IEC 60811-403, *Electric and optical fibre cables - Test methods for non-metallic materials - Miscellaneous tests - Ozone resistance test on cross-linked compounds*

IEC 60811-404, *Electric and optical fibre cables - Test methods for non-metallic materials - Miscellaneous tests - Mineral oil immersion tests for sheaths*

IEC 60811-412, *Electric and optical fibre cables - Test methods for non-metallic materials - Part 412: Miscellaneous tests - Thermal ageing methods - Ageing in an air bomb*

IEC 60811-501, *Electric and optical fibre cables - Test methods for non-metallic materials - Mechanical tests - Tests for determining the mechanical properties of insulating and sheathing compounds*

IEC 60811-504, *Electric and optical fibre cables - Test methods for non-metallic materials - Mechanical tests - Bending tests at low temperature for insulation and sheaths*

IEC 60811-505, *Electric and optical fibre cables - Test methods for non-metallic materials - Mechanical tests - Elongation at low temperature for insulations and sheaths*

IEC 60811-507, *Electric and optical fibre cables - Test methods for non-metallic materials - Mechanical tests - Hot set test for cross-linked materials*

IEC 62440, *Electric cables with a rated voltage not exceeding 450/750 V - Guide to use*

IEC 63294:2021, *Test methods for electric cables with rated voltage up to and including 450/750 V*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60245-1 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

– IEC Electropedia: available at https://www.electropedia.org/
– ISO Online browsing platform: available at https://www.iso.org/obp

3.1
type test
T
test required before supplying a type of cable covered by this document on a general commercial basis, in order to demonstrate satisfactory performance characteristics to meet the intended application

Note 1 to entry: Type tests are of such a nature that, after they have been carried out, they do not have to be repeated unless changes are made in the cable materials or design which can change the performance characteristics.

3.2
sample test
S
test carried out on samples of a completed cable, or components taken from a completed cable, to check that the finished product meets the design standard

~~2~~4 Braided cord

~~See Clause 5 of IEC 60245-8:1998, as introduced in Amendment 1 (2004).~~

Braided cord is described in IEC 60245-8:2026, Clause 6.

~~3~~5 Ordinary tough rubber sheathed cord

~~3~~5.1 Code designation

60245 IEC 53.

~~3~~5.2 Rated voltage

300/500 V.

~~3~~5.3 Construction

~~3~~5.3.1 Conductors

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

The conductors shall comply with the requirements given in IEC 60228 for class 5 conductors. The wires ~~may~~ can be plain or tinned.

~~3~~5.3.2 Separator

A separator of ~~suitable~~ material ~~may~~ can be applied around each conductor.

~~3~~5.3.3 Insulation

The insulation shall be a rubber compound of type IE4 applied around each conductor.

The insulation shall be applied by extrusion.

~~The insulation thickness shall comply with the specified value given in Table 1, column 2.~~

The specified value of the insulation thickness is given in Table 1

~~3~~5.3.4 Assembly of cores and filler, if any

The cores shall be twisted together.

A ~~centre~~ central filler ~~may~~ can be used.

~~3~~5.3.5 Sheath

The sheath shall be made of rubber compound of type SE3, applied around the cores.

~~The thickness of sheath shall comply with the specified value given in Table 1.~~

The specified value of the sheath thickness is given in Table 1.

The sheath shall be extruded in a single layer and applied in such a way that it fills the spaces between the cores.

~~The sheath shall be capable of being removed without damage to the cores.~~

It shall be possible to remove the sheath without damaging the cores.

~~3~~5.3.6 Overall diameter

The mean overall diameter shall be within the limits given in Table 1.

~~3~~5.4 Tests

~~Compliance with the requirements of 3.3 shall be checked by inspection and by the tests given in Table 2.~~

The test methods specified in Table 2 shall be used to perform the tests to check the compliance with the requirements specified in 5.3.

~~3~~5.5 ~~Guide to use~~ Guidance on use of the cables

Maximum conductor temperature in normal use: 60 °C.

~~NOTE Other guidelines are under consideration.~~

The use of the cable type 60245 IEC 53 shall comply with IEC 62440, which provides guidance on the safe use of electric cables with a rated voltage not exceeding 450/750 V.