

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Switches for household and similar fixed electrical installations –
Part 2-4: Particular requirements – Isolating switches**

<https://standards.iteh.ai>

**Interrupteurs pour installations électriques fixes domestiques et analogues –
Partie 2-4: Exigences particulières – Interrupteurs-sectionneurs**

[IEC 60669-2-4:2024](https://standards.iteh.ai/catalog/standards/iec/67d2b624-df9c-4e52-b0e1-11756beaf536/iec-60669-2-4-2024)

<https://standards.iteh.ai/catalog/standards/iec/67d2b624-df9c-4e52-b0e1-11756beaf536/iec-60669-2-4-2024>





THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2024 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.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Secretariat
3, rue de Varembe
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.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Recherche de publications IEC -

webstore.iec.ch/advsearchform

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études, ...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch

Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications, symboles graphiques et le glossaire. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

Electropedia - www.electropedia.org

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 500 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 25 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.



INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Switches for household and similar fixed electrical installations –
Part 2-4: Particular requirements – Isolating switches**

**Interrupteurs pour installations électriques fixes domestiques et analogues –
Partie 2-4: Exigences particulières – Interrupteurs-sectionneurs**

[IEC 60669-2-4:2024](https://standards.iteh.ai/standards/iec/67d2b624-df9c-4e52-b0e1-11756beaf536/iec-60669-2-4-2024)

<https://standards.iteh.ai/catalog/standards/iec/67d2b624-df9c-4e52-b0e1-11756beaf536/iec-60669-2-4-2024>

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 29.120.40

ISBN 978-2-8322-8332-5

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Normative references	6
3 Terms and definitions	6
4 General requirements	7
5 General remarks on tests	7
6 Ratings.....	8
7 Classification.....	9
8 Marking	9
9 Checking of dimensions.....	10
10 Protection against electric shock	10
11 Provision for earthing	10
12 Terminals	10
13 Constructional requirements	12
14 Mechanism	13
15 Resistance to ageing, protection provided by enclosures of switches and resistance to humidity.....	13
16 Insulation resistance and electric strength	13
17 Temperature rise	14
18 Making and breaking capacity.....	15
19 Normal operation	19
20 Mechanical strength	19
21 Resistance to heat.....	19
22 Screws, current-carrying parts and connections.....	20
23 Creepage distances, clearances and distances through sealing compound.....	20
24 Resistance of insulating material to abnormal heat, to fire and to tracking	21
25 Resistance to rusting	21
26 EMC requirements	21
Annexes	28
Annex B (informative) Changes planned for the future in order to align IEC 60669-1 with the requirements of IEC 60998 (all parts), IEC 60999 (all parts) and IEC 60228	29
Annex AA (informative) Determination of short-circuit power factor	30
Annex BB (informative) SCPDs for short-circuit tests	32
Bibliography.....	34
Figure 101 – Test circuit for verification of the short-circuit withstand capability with an SCPD of one-pole isolating switch	23
Figure 102 – Test circuit for verification of the short-circuit withstand capability with an SCPD of a two-pole isolating switch.....	24
Figure 103 – Test circuit for verification of the short-circuit withstand capability with an SCPD of a three-pole isolating switch	25
Figure 104 – Test circuit for verification of the short-circuit withstand capability with an SCPD of a four-pole isolating switch	26

Figure 105 – Test apparatus for verification of the minimum I^2t and I_p values to be withstood by the isolating switch	27
Table 1 – Number of specimens needed for the tests	7
Table 4 – Relationship between rated currents and connectable cross-sectional areas of copper conductors	11
Table 5 – Tightening torque for verification of the mechanical strength of screw-type terminals.....	11
Table 6 – Test values for flexion and pull out for copper conductors	12
Table 7 – Test values for pulling out test.....	12
Table 13 – External cable diameter limits for surface type switches	12
Table 101 – Test voltage and corresponding altitudes.....	14
Table 16 – Temperature-rise test currents and cross-sectional areas of copper conductors	14
Table 102 – Minimum values of I^2t and I_p	16
Table 103 – Power factors for short-circuit tests	17
Table 18 – Number of operations for normal operation test	19
Table 23 – Creepage distances, clearances and distances through insulating sealing compound.....	20
Table BB.1 – Indication of silver wire diameters as a function of rated currents and short-circuit currents	32

Document Preview

[IEC 60669-2-4:2024](https://standards.iteh.ai/catalog/standards/iec/67d2b624-df9c-4e52-b0e1-11756beaf536/iec-60669-2-4-2024)

<https://standards.iteh.ai/catalog/standards/iec/67d2b624-df9c-4e52-b0e1-11756beaf536/iec-60669-2-4-2024>

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SWITCHES FOR HOUSEHOLD AND SIMILAR
FIXED ELECTRICAL INSTALLATIONS –****Part 2-4: Particular requirements –
Isolating switches**

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.

IEC 60669-2-4 has been prepared by subcommittee 23B: Plugs, socket-outlets and switches, of IEC technical committee 23: Electrical accessories. It is an International Standard.

This second edition cancels and replaces the first edition published in 2004. This edition constitutes a technical revision.

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

- a) revision of the present edition with reference to the published IEC 60669-1:2017 Edition 4 with its amendments and references to clauses and tables;
- b) introducing the values for isolating switches with ratings from 6 A to 13 A;

- c) introducing a circuit motor load with a rated current not exceeding 10 A and a power factor not less than 0,6 in the scope;
- d) modification of Table 1 and Table 5.

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

Draft	Report on voting
23B/1460/CDV	23B/1480A/RVC

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 part of IEC 60669 is to be used in conjunction with IEC 60669-1:2017. It lists the changes necessary to convert that standard into a specific standard for isolating switches.

When a particular subclause of IEC 60669-1:2017 is not mentioned in this document, that subclause applies as far as reasonable.

In this document,

- the following print types are used:
 - requirements proper: in roman type;
 - *test specifications: in italic type*;
 - notes: in smaller roman type;
- subclauses, figures, tables or notes which are additional to those in IEC 60669-1:2017 are numbered starting from 101. Annexes additional to those in IEC 60669-1:2017 are lettered AA, BB, etc.

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.

SWITCHES FOR HOUSEHOLD AND SIMILAR FIXED ELECTRICAL INSTALLATIONS –

Part 2-4: Particular requirements – Isolating switches

1 Scope

Clause 1 of IEC 60669-1:2017 applies except as follows.

Replacement of the first paragraph with the following:

This part of IEC 60669 applies to manually operated general purpose isolating switches with a rated voltage not exceeding 440 V and a rated current not exceeding 125 A, intended for household and similar fixed electrical installations, either indoors or outdoors.

Replacement of the fifth dash of the third paragraph:

- a monophasic circuit for motor load with a rated current up to 10 A and a power factor not less than 0,6.

NOTE 101 Isolating switches are designed for overvoltage category III and used in environment of pollution degree 2 according to IEC 60664-1.

2 Normative references

Clause 2 of IEC 60669-1:2017 applies except as follows.

[IEC 60669-2-4:2024](https://standards.iteh.ai/catalog/standards/iec/67d2b624-df9c-4e52-b0e1-11756beaf536/iec-60669-2-4-2024)

<https://standards.iteh.ai/catalog/standards/iec/67d2b624-df9c-4e52-b0e1-11756beaf536/iec-60669-2-4-2024>

IEC 60669-1:2017, *Switches for household and similar fixed electrical installations – Part 1: General requirements*

IEC 61180:2016, *High-voltage test techniques for low-voltage equipment – Definitions, test and procedure requirements, test equipment*

3 Terms and definitions

Clause 3 of IEC 60669-1:2017 applies except as follows.

Additional definitions:

3.101

isolating switch

switch designed to provide isolation of the installation or part of the installation and equipment from the supply and to carry and to make and break the current in all line current carrying poles

3.102 rated conditional short-circuit current

I_{nc}

value of the AC component of a prospective current assigned by the manufacturer, which a switch without integral short-circuit protection, but protected by a suitable short-circuit protective device (hereinafter referred to as SCPD) in series, can withstand under specified conditions of use and behaviour

3.103 Joule integral

I^2t

integral of the square of the current over a given time interval (t_0 , t_1)

$$I^2t = \int_{t_0}^{t_1} i^2 dt$$

[SOURCE: IEC 60050-441:1984, 441-18-23 – modified with the deletion of the notes and addition of "(t_0 , t_1)".]

4 General requirements

Clause 4 of IEC 60669-1:2017 applies.

5 General remarks on tests

Clause 5 of IEC 60669-1:2017 applies except as follows.

Replace Table 1 with the following:

Table 1 – Number of specimens needed for the tests

Clauses and subclauses		Number of specimens	Number of additional specimens for dual current rating
6	Ratings	A	
7	Classification	A	
8	Marking	A	
9	Checking of dimensions	ABC	
10	Protection against electric shock	ABC	
11	Provision for earthing	ABC	
12	Terminals ^{a, f, l}	ABC	JKL
13	Constructional requirements ^{b, m}	ABC	
14	Mechanism	ABC	
15	Resistance to ageing, protection provided by enclosures of switches, and resistance to humidity	ABC	
16	Insulation resistance and electric strength ^c	ABC	
17	Temperature rise	ABC	JKL
18	Making and breaking capacity	ABC ⁱ	JKL
19	Normal operation	ABC ⁱ	JKL

Clauses and subclauses		Number of specimens	Number of additional specimens for dual current rating
20	Mechanical strength ^{d,g}	ABC	
21	Resistance to heat ^h	ABC	
22	Screws, current-carrying parts and connections	ABC	
23	Creepage distances, clearances and distances through sealing compound	ABC	
16.101	Impulse voltage test ^l	XYZ	
18.101	Short-circuit withstand capability ^m	XYZ + PQR	
19.2	Test for switches intended for externally ballasted lamp loads	DEF	MNO
19.3	Test for switches intended for self-ballasted lamp loads	UVW	XYZ
24.1	Resistance to abnormal heat and to fire	GHI	
24.2	Resistance to tracking ^e	GHI	
25	Resistance to rusting	GHI	
TOTAL		18	9

- ^a Five extra screwless terminals are used for the test of 12.3.11 and one extra set of specimens is used for the test of 12.3.12.
- ^b An extra set of membranes are needed for each of the tests of 13.15.1 and 13.15.2.
- ^c One extra set of specimens of switches fitted with pilot light may be used for the tests of Clause 16.
- ^d One extra set of specimens of cord-operated isolating switches is needed for the test of 20.10.
- ^e One extra set of specimens may be used.
- ^f Two extra sets of specimens of terminals suitable for rigid and flexible conductors are required for 12.2.5, 12.2.6 and 12.2.7.
- ^g One extra set of specimens is needed for the tests of 20.5.1 and 20.5.2.
- ^h One extra set of specimens may be used for the tests of 21.2 and 21.3. In this case the specimens shall be subjected first to the tests of 15.1.
- ⁱ Number of specimens required for insulation-piercing terminals (IPTs) are shown in Table D.1.
- ^j For switches with pilot light units if the electronic circuitry is so enclosed that the short-circuiting or disconnecting of components is impossible or difficult, the manufacturer shall provide additional prepared test specimens.
- ^k For isolating switches of pattern number 2 one extra set of specimens is used.
- ^l Test to be carried out only if the clearance of item 6 of Clause 23 is lower than 4 mm.
- ^m For the test of 18.101 six additional specimens are used.

6 Ratings

Clause 6 of IEC 60669-1:2017 applies except as follows.

6.2 Modification:

In the first paragraph, add the values "80 A, 100 A and 125 A."

6.3 Preferred combinations of number of poles and ratings

Replacement in Table 3, first column, last line, of the values "16, 20, 25, 32, 40, 45, 50 and 63" with "equal to or greater than 16".

Additional subclause:

6.101 Standard and preferred values of the rated conditional short-circuit current (I_{nc})

NOTE 101 The associated power-factors are specified in Table 103.

6.101.1 Values up to and including 10 000 A

The standard values of the rated conditional short-circuit current (I_{nc}) are:

1 500 A, 3 000 A, 4 500 A, 6 000 A and 10 000 A.

6.101.2 Values above 10 000 A

The preferred values are:

15 000 A, 20 000 A and 25 000 A.

Values above 25 000 A are not considered by this document.

7 Classification

Clause 7 of IEC 60669-1:2017 applies except as follows.

7.1 Addition:

Isolating switches shall be only of pattern numbers 1, 2, 3 or 03.

7.2 Subclause 7.2 of IEC 60669-1:2017 is not applicable.

7.6 Addition:

[IEC 60669-2-4:2024](https://standards.iteh.ai/catalog/standards/iec/67d2b624-df9c-4e52-b0e1-11756beaf536/iec-60669-2-4-2024)

<https://standards.iteh.ai/catalog/standards/iec/67d2b624-df9c-4e52-b0e1-11756beaf536/iec-60669-2-4-2024>
– rail-type

8 Marking

Clause 8 of IEC 60669-1:2017 applies except as follows.

8.1 General

Modify as follows:

f), g) and h) are not applicable

Addition:

n) symbols for open position (OFF) and closed position (ON),

o) symbol for isolating function,

p) rated conditional short-circuit current (I_{nc}).

The manufacturer shall provide reference(s) of one or more short-circuit protection devices (SCPDs). This information shall be provided:


- in a catalogue, or
- in the instructions accompanying the isolating switch, or
- in both the catalogue and the accompanying instructions.

8.2 Symbols

Modify as follows:

Symbols for mini-gap construction, micro-gap constructions and without contact gap are not applicable.

Addition:

isolating function	
rated conditional short-circuit current	I_{nc}

8.3 Visibility of markings

Addition:

Isolating switches shall be marked with the symbols for isolating function and for the closed and open position. These markings shall be visible from the front after installation, even after removal of the front cover of the enclosure when the isolating switch is mounted and wired as in normal use. The isolating function symbol may be included in a wiring diagram combined with symbols for other functions, provided that the isolation function symbol is visible from the front when the isolating switch is mounted and wired as in normal use.

The marking for the rated conditional short-circuit current (I_{nc}) shall be on the isolating switch or in the manufacturer's documentation.

8.6 Marking of the switch position

Replacement of the first sentence of the first paragraph:

Isolating switches shall be so marked that the actual contact position is clearly indicated.

Deletion of Note 1 and Note 2.

9 Checking of dimensions

Clause 9 of IEC 60669-1:2017 applies.

10 Protection against electric shock

Clause 10 of IEC 60669-1:2017 applies except as follows.

10.3.1 Replacement of the introductory sentence to the list:

Accessible parts of isolating switches shall be made of insulating material, with the exception of the following:

11 Provision for earthing

Clause 11 of IEC 60669-1:2017 applies.

12 Terminals

Clause 12 of IEC 60669-1:2017 applies except as follows.

12.2.1 Addition to Table 4:**Table 4 – Relationship between rated currents and connectable cross-sectional areas of copper conductors**

Ranges of rated currents A	Rigid conductors (solid or stranded) ^c	
	Nominal cross-sectional areas mm ²	Diameter of largest conductor mm
Above 63 up to and including 80	From 10 up to 25 inclusive	6,85
Above 80 up to and including 100	From 16 up to 35 inclusive	7,90
Above 100 up to and including 125	From 25 up to 50 inclusive	9,10

12.2.5 Replacement of Table 5:**Table 5 – Tightening torque for verification of the mechanical strength of screw-type terminals**

Nominal diameter of thread mm	Torque				
	Nm				
	1	2	3	4	5
Up to and including 2,8	0,2	–	0,4	0,4	–
Above 2,8 up to and including 3,0	0,25	–	0,5	0,5	–
Above 3,0 up to and including 3,2	0,3	–	0,6	0,6	–
Above 3,2 up to and including 3,6	0,4	–	0,8	0,8	–
Above 3,6 up to and including 4,1	0,7	1,2	1,2	1,2	1,2
Above 4,1 up to and including 4,7	0,8	1,2	1,8	1,8	1,8
Above 4,7 up to and including 5,3	0,8	1,4	2,0	2,0	2,0
Above 5,3 up to and including 6,0	1,2	1,8	2,5	3,0	3,0
Above 6,0 up to and including 8,0	2,5	2,5	3,5	6,0	4,0
Above 8,0 up to and including 10,0	–	3,5	4,0	10,0	6,0
Above 10,0 up to and including 12,0	–	4,0	–	–	8,0
Above 12,0 up to and including 15,0	–	5,0	–	–	10,0

Column 1 applies to screws without heads if the screw when tightened does not protrude from the hole, and to other screws which cannot be tightened by means of a screwdriver with a blade wider than the diameter of the screw.

Column 2 applies to nuts of mantle terminals which are tightened by means of a screwdriver.

Column 3 applies to other screws which are tightened by means of a screwdriver.

Column 4 applies to nuts of mantle terminals in which the nut is tightened by means other than a screwdriver.

Column 5 applies to screws or nuts, other than nuts of mantle terminals, which are tightened by means other than a screwdriver.

12.2.5 Addition to Table 6:

Table 6 – Test values for flexion and pull out for copper conductors

Conductor cross-sectional area ^a mm ²	Diameter of bushing hole ^b mm	Height <i>H</i> ^c mm	Mass for conductor kg
35	14,5	320	6,8
50	16	340	9,5

12.2.6 Addition to Table 7:

Table 7 – Test values for pulling out test

Cross-section of conductors connected to the terminal mm ²	35	50
Pull N	190	235

13 Constructional requirements
(<https://standards.iteh.ai>)
Document Preview

Clause 13 of IEC 60669-1:2017 applies except as follows.

13.12 Addition to Table 13:

Table 13 – External cable diameter limits for surface type switches

Rated current A	Cross-sectional areas mm ²	Number of conductors	Limits of external diameter of cables	
			Minimum mm	Maximum mm
80 100	16 up to and including 35	2	15,5	—
		3		37,1
		4		41,1
		5		—
125	25 up to and including 50	2	18,5	—
		3		42,9
		4		47,5
		5		—

Addition:

13.101 Indication of the contact position

Isolating switches when in the open position shall provide an isolation distance in accordance with the requirements necessary to satisfy the isolating function.