IEC 61058-2-4

Edition 2.0 2018-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Switches for appliances –
Part 2-4: Particular requirements for independently mounted switches

Interrupteurs pour appareils –
Partie 2-4: Exigences particulières pour les interrupteurs à montage indépendant

IEC 61058-2-4:2018-10(en-fr)

Documents
Document Sharing Hub
Full document details: IEC 61058-2-4 2018

THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2018 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 Central Office
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 corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue
The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

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 also once a month by email.

Electropedia - www.electropedia.org
The world's leading online dictionary of electronic and electrical terms containing 21 000 terms and definitions in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary
67 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

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.

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.

Catalogue IEC - webstore.iec.ch/catalogue
Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

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 aussi une fois par mois par email.

Electropedia - www.electropedia.org

Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient 21 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary
67 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

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.

Documents
Document Sharing Hub

Full document details: IEC 61058-2-4 2018

IEC 61058-2-4

Edition 2.0 2018-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Switches for appliances –
Part 2-4: Particular requirements for independently mounted switches

Interrupteurs pour appareils –
Partie 2-4: Exigences particulières pour les interrupteurs à montage indépendant

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 29.120.40

ISBN 978-2-8322-6090-6

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.

AVA Documents
Document Sharing Hub

® Registered trademark of the International Electrotechnical Commission
Marque déposée de la Commission Electrotechnique Internationale

Full document details: IEC 61058-2-4 2018

CONTENTS

FOREWORD 3
1 Scope 5
2 Normative references 5
3 Terms and definitions 6
4 General requirements 6
5 General information on tests 6
6 Rating 6
7 Classification 6
8 Marking and documentation 7
9 Protection against electric shock 8
10 Provision for earthing 8
11 Terminals and terminations 8
12 Construction 8
13 Mechanism 15
14 Protection against ingress of solid foreign objects, ingress of water, and humid conditions 15
15 Insulation resistance and dielectric strength 16
16 Heating 16
17 Endurance 17
18 Mechanical strength 17
19 Screws, current-carrying parts and connections 17
20 Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies 17
21 Fire hazard 17
22 Resistance to rusting 18
23 Abnormal operation and fault conditions for switches 18
24 Components for switches 18
25 EMC requirements 18
Annexes 20
Annex K (normative) Routine tests 20
Annex L (informative) Sampling tests 20
Annex M (normative) Switch families 20

Figure 101 – Example of pull apparatus for testing the cord anchorage 18
Figure 102 – Example of torque apparatus for testing the cord anchorage 19
Figure 103 – Example of apparatus for flexing test 19

Table 3 – Switch information and loads placed in groups 7
Table 101 – Rated currents for resistor loads and related types of cables 12
Table 102 – Torque values for torque test 14
Table 103 – Torque values for insulating material screws 17

AVA Documents
Document Sharing Hub

Full document details: IEC 61058-2-4 2018

INTERNATIONAL ELECTROTECHNICAL COMMISSION

SWITCHES FOR APPLIANCES –

Part 2-4: Particular requirements for independently mounted 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) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61058-2-4 has been prepared by subcommittee 23J: Switches for appliances, of IEC technical committee 23: Electrical accessories.

This second edition cancels and replaces the first edition published in 1995 and constitutes a technical revision.

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

a) overall format modified to support the revised structure of the series;
b) Annexes K and M have been included as an integral part of this document;
c) Annex L has been included for information purposes only.

Documents
Document Sharing Hub

Full document details: IEC 61058-2-4 2018

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

CDV	Report on voting
23J/433/CDV	23J/441/RVC

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

This document is to be used in conjunction with IEC 61058-1:2016.

This document supplements or modifies the corresponding clauses in IEC 61058-1, so as to convert that publication into the IEC standard: *Particular requirements for independently mounted switches*.

When a particular subclause of IEC 61058-1 is not mentioned in this document, that subclause applies as far as reasonable. Where this document states "addition", "modification" or "replacement", the relevant text of IEC 61058-1 is to be adapted accordingly.

In this document:

1) the following print types are used:
   - requirements proper: in roman type;
   - *test specifications: in italic type;*
   - explanatory matter: in smaller roman type.
2) subclauses, figures or tables which are additional to those in IEC 61058-1 are numbered starting from 101.

A list of all the parts in the IEC 61058 series, under the general title *Switches for appliances*, 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 "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

Documents
Document Sharing Hub

Full document details: IEC 61058-2-4 2018

SWITCHES FOR APPLIANCES –

Part 2-4: Particular requirements for independently mounted switches

1 Scope

Clause 1 of IEC 61058-1:2016 is applicable, except as follows.

Addition:

This document applies to independently mounted switches for appliances (mechanical or electronic) actuated by hand, by foot or by other human activity, to operate or control electrical appliances and other equipment for household or similar purposes with a rated voltage not exceeding 480 V and a rated current not exceeding 63 A.

These switches are intended to be operated by a person, via an actuating member or by actuating a sensing unit. The actuating member or sensing unit can be integral with or arranged separately, either physically or electrically, from the switch and involve transmission of a signal, for example, electrical, optical, acoustic or thermal, between the actuating member or sensing unit and the switch.

Switches which incorporate additional control functions governed by the switch function are within the scope of this document.

This document also covers the indirect actuation of the switch when the operation of the actuating member or sensing unit is provided by a remote control or by a part of an appliance or equipment, such as a door.

NOTE 1 Electronic switches can be combined with mechanical switches giving full disconnection or micro-disconnection.

NOTE 2 Electronic switches without a mechanical switch in the supply circuit provide only electronic disconnection. Therefore, the circuit on the load side is always considered to be live.

NOTE 3 For switches used in tropical climates, additional requirements can apply.

NOTE 4 Attention is drawn to the fact that the standards for appliances can contain additional or alternative requirements for switches.

NOTE 5 Throughout this document, the word "appliance" means "appliance or equipment".

2 Normative references

Clause 2 of IEC 61058-1:2016 is applicable except as follows.

Addition:

IEC 60227-5, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 5: Flexible cables (cords)*

IEC 60245-4, *Rubber insulated cables – Rated voltages up to and including 450/750 V – Part 4: Cords and flexible cables*

Documents
Document Sharing Hub

Full document details: IEC 61058-2-4 2018

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

IEC 61058-1:2016, *Switches for appliances – Part 1: General requirements*

3 Terms and definitions

Clause 3 of IEC 61058-1:2016 is applicable, except as follows.

3.3 Terms and definitions relating to the different types of switches

Additional terms and definitions:

3.3.101
independently mounted switch
switch intended to be mounted away from the controlled appliance or equipment

3.3.102
design A switch
switch where the cover or coverplate can be removed without displacement of the conductor(s)

3.3.103
design B switch
switch where the cover or coverplate cannot be removed without displacement of the conductor(s)

4 General requirements

Clause 4 of IEC 61058-1:2016 is applicable.

5 General information on tests

Clause 5 of IEC 61058-1:2016 is applicable.

6 Rating

Clause 6 of IEC 61058-1:2016 is applicable.

7 Classification

Clause 7 of IEC 61058-1:2016 is applicable except as follows.

7.5 Degree of protection against solid foreign objects

Replacement:

The degree of protection against solid foreign objects is declared.

With the exception of IP0X and IP1X, all IP ratings are allowed.

7.11 According to resistance to ignitability by the glow wire temperature

Documents
Document Sharing Hub

Full document details: IEC 61058-2-4 2018

Subclause 7.11.1 of IEC 61058-1:2016 is not applicable.

7.22 According to the type of forced cooling

Subclause 7.22.2 of IEC 61058-1:2016 is not applicable.

Additional subclauses:

7.101 According to design

7.101.1 design A switch;

7.101.2 design B switch.

NOTE 1 See definitions 3.3.102 and 3.3.103.

NOTE 2 If a switch has a base which cannot be separated from the cover or cover plate, and requires an intermediate plate which can be removed for redecorating the wall, it is considered to be of design A, provided the intermediate plate meets the requirements specified for covers and cover plates.

7.102 According to outlet facilities

7.102.1 switch with inlet/outlet facilities for rigid cables;

7.102.2 switch with inlet facilities for rigid cables and outlet facilities for flexible cables.

8 Marking and documentation

Clause 8 of IEC 61058-1:2016 is applicable with the following modifications to Table 3:

Table 3 – Switch information and loads placed in groups

Modification:

No.	Characteristic	Subclause	Means of information	
			Common type reference CT	Unique type reference UT
2	**SWITCH ENVIRONMENT/MOUNTING**			
2.1	Degree of protection provided for the switch when mounted according to documentation (IP code of IEC 60529) NOTE Additional letters listed in IEC 60529 are not used.	7.5 and 7.6	Marking	Marking
4	**ELECTRICAL LOAD/CONNECTION**			
4.1	Rated voltage or rated voltage range	6.1	Marking	Marking

Documents
Document Sharing Hub
Full document details: IEC 61058-2-4 2018

Additional rows:

101	**SWITCH DESIGN**			
101.1	Type of switch design	7.101.1 and 7.101.2	Document-ation	Document-ation
102	**OUTLET FACILITIES**			
102.1	Type of outlet facilities	7.102	Document-ation	Document-ation

9 Protection against electric shock

Clause 9 of IEC 61058-1:2016 is applicable, except as follows.

9.1 *Addition of the following sentence to a):*

The switch shall be fitted with the conductor of the smallest or largest nominal cross-sectional area according to Table 4 whichever is more unfavourable, or with a rigid conduit, a pliable conduit or a flexible conduit.

Addition to d):

This test finger, with an electrical indicator, is not applied to membranes in inlet openings and is applied to thin-walled knock-outs with a force of only 10 N.

Additional subclause:

9.101 Switches operated by means of a removable key or by means of an intermediate part, such as a cord, a chain or a rod, shall be so designed that the key or intermediate part can only touch parts which are insulated from live parts.

The key or intermediate part shall be insulated from metal parts of the mechanism, unless the clearances and creepage distances between live parts and metal parts of the mechanism have at least the values specified in 20.2.5 and 20.4.5.

Compliance is checked by inspection, by the test of 15.3 and, if necessary, by measurement.

NOTE Lacquer or enamel is not considered to be insulating material for the purpose of 9.101.

10 Provision for earthing

Clause 10 of IEC 61058-1:2016 is applicable.

11 Terminals and terminations

Clause 11 of IEC 61058-1:2016 is applicable.

12 Construction

Clause 12 of IEC 61058-1:2016 is not applicable.

Additional subclauses:

Documents
Document Sharing Hub

Full document details: IEC 61058-2-4 2018

12.101 Insulating linings, barriers and the like, shall have adequate mechanical strength and shall be secured in a reliable manner.

Compliance is checked by inspection after the tests of Clause 18.

12.102 Switches shall be so constructed as to permit:

- easy introduction and connection of the conductors in the terminals;
- adequate space between the underside of the base and the surface on which the base is mounted or between the sides of the base and the enclosure (cover or box) so that, after installation of the switch, the insulation of the conductors does not come in contact with live parts of different polarity or with moving parts of the mechanism, such as the spindle of a rotary switch;

  NOTE This requirement does not imply that the metal parts of the terminals are necessarily protected by insulating barriers or insulating shoulders to avoid contact, due to incorrect installation of the terminal metal parts, with the insulation of the conductor.
- easy fixing of the base to a wall or in a box and correct positioning of the conductors. For surface-type switches, mounted on a mounting plate, a wiring channel may be needed to comply with this requirement.

In addition, switches classified according to 7.101.1 (design A switch) shall permit an easy positioning and removal of the cover or cover plate, without displacing the conductors.

Compliance is checked by inspection and by an installation test with conductors of the largest cross-sectional area for the relevant terminal size, in Table 4.

12.103 Covers and cover plates or parts thereof, which are intended to ensure protection against electric shock, shall be held in place at two or more points by effective fixing.

Covers and cover plates or parts thereof may be fixed by means of a single fixing, for example by a screw, provided that they are retained in position by another means (e.g. by a shoulder).

It is recommended that the fixings of covers and cover plates or parts thereof be captive. The use of tight fixing washers of cardboard or the like is deemed to be an adequate method for securing screws intended to be captive.

NOTE Live parts and non-earthed metal parts separated from live parts in such a way that creepage distances and clearances have values specified in Clause 20 are not considered as accessible if the requirements of 12.103 are met.

For switches with a degree of protection IPX0, the fixing of covers or cover plates shall not serve to fix any other part, except the knobs.

When the fixings of covers or cover plates also serve to fix the base, there shall be sufficient means to maintain the base in position after removal of the cover or cover plate.

Decorative covers, cover plates or parts thereof not providing protection against electric shock are not considered as covers or cover plates within the meaning of 12.103.

For covers and cover plates or parts thereof whose fixing is of the screw-type, compliance is checked by inspection and by an installation test.

For covers and cover plates or parts thereof whose fixing is not dependent on screws and whose removal is obtained by applying a force in a direction approximately perpendicular to the mounting/supporting surface, compliance is checked by applying the test described in 13.3.2 of IEC 60669-1:2017 under the conditions set out in 20.4 to 20.6 of IEC 60669-1:2017.

AVA Documents
Document Sharing Hub

Full document details: IEC 61058-2-4 2018

12.104 Surface-type switches with degree of protection IPX0 shall be so constructed that, when they are fixed and wired as in normal use, there are no free openings in their enclosures.

Compliance is checked by inspection and by an installation test with conductors of the cross-sectional area specified in Table 4.

NOTE Small gaps between enclosures and conduits or cables, or between enclosures and operating means are disregarded.

12.105 Knobs of rotary switches shall be securely coupled to the shaft or part operating the mechanism.

The knob is subjected for 1 min to an axial pull of 100 N .

In addition, for knobs of switches having only one direction of operation, a torque of 1 Nm or the actuating torque if this is greater, is applied 100 times in the direction opposite to the direction of operation.

During the test, the knob shall not become detached.

NOTE Requirements for the fixation of other types of actuating members are under consideration.

12.106 Screws or other means for mounting the switch on a surface or in a box or enclosure apart from panel mounting shall be easily accessible from the front. These means shall not serve any other fixing purpose.

12.107 Other electrical accessories combined with switches shall comply with the requirements of the standard for the accessory in question.

12.108 Switches other than those with degree of protection IPX0 shall be totally enclosed when fitted with conduits or cables.

Surface-type switches other than those with degree of protection IPX0 shall have provision for opening a drain hole at least 5 mm in diameter, or 20 mm^2 in area with a width and length of at least 3 mm.

The drain hole shall be effective in at least two positions of the switch when this is mounted on a vertical wall, one of these with the conductors entering at the top and the other with the conductors entering at the bottom.

Compliance is checked by measurement and by inspection during the relevant tests of 14.2.

NOTE A drain hole in the back of the enclosure is deemed to be effective only if the design of the enclosure ensures a clearance of at least 5 mm from the wall, or provides a drainage channel of at least the size specified.

12.109 Switches to be installed in a box shall be so designed that the conductor ends can be prepared after the box is mounted in position, but before the switch is fitted in the box.

In addition, the base shall have adequate stability when mounted in the box.

Compliance is checked by inspection and by an installation test with the appropriate cable with conductors of the largest cross-sectional areas specified, for the relevant terminal size, in Table 4.

12.110 Single pole surface type switches of an IP degree higher than X0 with an enclosure having more than one inlet opening shall be provided with an additional terminal for

AVA Documents
Document Sharing Hub
Full document details: IEC 61058-2-4 2018

maintaining the continuity of a second current carrying conductor and complying with the appropriate requirements of Clause 11, or with an adequate space for a floating terminal.

Compliance is checked by inspection and by the relevant tests of Clause 11.

NOTE For switches for Class I appliances, this terminal is additional to the terminal required according to Clause 10.

12.111 Inlet openings shall allow the introduction of the conduit or the protective covering of the sheathed cable so as to afford complete mechanical protection.

IPX0 surface-type switches shall be so constructed that the conduit or protective covering can enter at least 1 mm into the enclosure.

In IPX0 surface-type switches, the inlet opening for conduit entries, or at least two of them if there are more than one, shall be capable of accepting conduit sizes of 16, 20, 25 or 32 or a combination of at least two of any of these sizes.

Compliance is checked by inspection during the test of 12.109 and by measurement.

NOTE Inlet openings of adequate size can also be obtained by the use of knock-outs or of suitable insertion pieces.

If ordinary surface-type switches are intended for back entry from a conduit they shall be so designed that they have provision for back entry from a conduit perpendicular to the mounting surface of the switch.

Compliance is checked by inspection.

If the switch is provided with membranes in inlet openings, these shall be replaceable.

Compliance is checked by inspection.

12.112 Switches classified according to 7.102.2 shall have cord anchorages at the declared outlet facilities for flexible cables such that the conductors are relieved from strain, including twisting, where they are connected to the terminals, and such that their covering is protected from abrasion and kept in position.

12.112.1 It shall be clear how the relief from strain and the prevention of twisting is intended to be effected.

12.112.2 The inlet or bushing shall be provided with a smoothly rounded opening.

12.112.3 Makeshift methods such as tying the cable into a knot, or tying the ends with string shall not be used.

12.112.4 Cord anchorages of switches shall be of insulating material, or, if of metal, be insulated from accessible metal parts or accessible insulating surfaces, by insulation complying with the requirements for supplementary insulation.

The cord anchorages shall be so designed that their parts do not fall out when the cover is removed, even if the switches are not fitted with their cables.

12.112.5 Cord anchorages shall further be so designed that:

- for any attachment method, the cable is not fixed by penetration of its insulation in such a way that the insulation of the cable is cut or otherwise significantly damaged. A slight

AVA Documents
Document Sharing Hub

deformation of the insulation, in such a way that the insulation of the cable is not cut or otherwise significantly damaged, is allowed;

- the cable cannot touch clamping screws of the cord anchorage if these screws are accessible or electrically connected to accessible metal parts;
- the cable is not clamped by a screw which bears directly on the cable, except where the screw is made of insulating material;
- at least one part is securely fixed to the switch;
- replacement of the cable does not require the use of a special purpose tool;
- they are suitable for the different types of cables which may be connected.

12.112.6 Cord anchorages shall be so designed and located that replacement of the cable is easily possible.

12.112.7 Screws, if any, which have to be operated when replacing the cable, shall not serve to fix any other component, unless either the switch is rendered inoperable or manifestly incomplete if they are omitted or incorrectly replaced, or the component intended to be fixed cannot be removed without the aid of a tool when replacing the cable.

Compliance is checked by inspection and by a pull test in an apparatus similar to that shown in Figure 101, followed by a torque test in an apparatus similar to that shown in Figure 102:

- *three new switches are tested with cables as declared by the manufacturer having the smallest and largest cross-sectional area as specified in Table 101. Before the test the free length of the cable shall be cut to 150 mm ± 5 mm;*
- *switches provided with entries specially designed for the connection of PVC insulated flat cables (60227 IEC 52) are tested with flat cables only.*

Table 101 – Rated currents for resistor loads and related types of cables

Rated current for resistor load A	Number of cores	Nominal cross-sectional area of each conductor mm^2	Types of cables
Up to and including 3	2	0,5	60227 IEC 52
		0,75	60227 IEC 52 60227 IEC 52 fl
	3	0,5	60227 IEC 52
		0,75	60227 IEC 52
Over 3 and up to and including 6	2	0,75	60227 IEC 52 60227 IEC 52 fl 60227 IEC 53 60227 IEC 53 fl
	3	0,75	60227 IEC 52 60227 IEC 53
	4	1,0	60227 IEC 53
Over 6 and up to and including 16	2	0,75	60227 IEC 52 60227 IEC 52 fl 60227 IEC 53 60227 IEC 53 fl
		1,0	60227 IEC 53
		1,5	60227 IEC 53

AVA Documents
Document Sharing Hub
Full document details: IEC 61058-2-4 2018