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INTERNATIONAL STANDARD

Plugs and socket-outlets for household and similar purposes – Part 2-3: Particular requirements for switched socket-outlets without interlock for fixed installations

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FOREWORD

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IEC 60884-2-3 has been prepared by subcommittee 23B: Plugs, socket-outlets and switches, of IEC technical committee 23: Electrical accessories. It is an International Standard.

This third edition cancels and replaces the second edition published in 2006. This edition constitutes a technical revision.

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

a) alignment to IEC 60884-1, fourth edition.

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

Draft	Report on voting
23B/1546/FDIS	23B/1560/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 60884-1:2022.

This document supplements or modifies the corresponding clauses in IEC 60884-1:2022, so as to convert that publication into the IEC standard: Particular requirements for switched socket-outlets without interlock for fixed installations.

When a particular subclause of IEC 60884-1:2022 is mentioned in this document, that subclause applies as far as reasonable. Where this document states "addition", "modification" or "replacement", the relevant text of IEC 60884-1:2022 is to be adapted accordingly.

In this document the following print types are used:

– requirements proper: in roman type;
– *test specification: in italic type;*
– explanatory notes: in small roman type.

Subclauses, notes, figures and tables or figures which are additional to those in IEC 60884-1:2022 are numbered starting from 101.

A list of all parts in the IEC 60884 series, published under the general title *Plugs and socket-outlets for household and similar purposes*, 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.

PLUGS AND SOCKET-OUTLETS FOR HOUSEHOLD AND SIMILAR PURPOSES –

Part 2-3: Particular requirements for switched socket-outlets without interlock for fixed installations

1 Scope

IEC 60884-1:2022, Clause 1 is applicable except as follows.

Replacement of the first paragraph:

This part of IEC 60884 applies to switched socket-outlets without interlock, for fixed installation, for AC only, with or without earthing contact, with a rated voltage not exceeding 440 V and a rated current not exceeding 32 A, intended for household and similar purposes, either indoors or outdoors.

This document applies to socket-outlets controlled by a manually operated mechanical switch.

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.

IEC 60884-1:2022, Clause 2 is applicable except as follows.

Addition:

IEC 60884-1:2022, *Plugs and socket-outlets for household and similar purposes – Part 1: General requirements*

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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

IEC 60884-1:2022, Clause 3 is applicable except as follows.

Addition:

3.101
switched socket-outlet
factory assembled accessory consisting of a socket-outlet with a switch controlling the socket-outlet

3.102
multiple switched socket-outlet
accessory incorporating more than one switched socket-outlet, each socket-outlet being controlled by its own switch

3.103
switch
device designed to make or break the current in one or more electric circuits

3.104
one operation
transfer of the moving contacts from one operating position to another

4 General requirements

IEC 60884-1:2022, Clause 4 is applicable.

5 General remarks on tests

IEC 60884-1:2022, Clause 5 is applicable.

6 Ratings

IEC 60884-1:2022, Clause 6 is applicable except as follows.

Addition:

6.101 Ratings of switched socket-outlets

Switches of switched socket-outlets shall have current and voltage ratings not less than those of the socket-outlets they control.

7 Classification

IEC 60884-1:2022, Clause 7 is applicable except as follows.

7.2 Socket-outlet classification

Addition:

7.2.101 Switched socket-outlets are classified:

7.2.101.1 According to the method of actuating the switch:

– rotary;
– tumbler;
– rocker;
– push-button;
– cord-operated.

7.2.101.2 According to the switching of the neutral:

– switched;
– unswitched.

8 Marking

IEC 60884-1:2022, Clause 8 is applicable except as follows.

8.1 General

Addition after the seventh dash:

– symbol for mini-gap construction, if applicable.

8.2 Symbols

Addition before Note 1:

– Mini-gap construction m
– Open position (off) O
– Close position (on) I

Addition:

8.101 Identification of line terminals

Terminals intended for the connection of line conductors shall be identified unless the method of connection is not important, is self-evident or is indicated on a wiring diagram. Such identification may take the form of a letter L or, in the case of more than one such terminal, the letters L1, L2, L3, etc., which may be accompanied by an arrow or arrows pointing to the relevant terminal or terminals.

For two-, three-, and four-pole switches, terminals associated with any one pole shall have similar identification, if applicable, differing from that of the terminals associated with the other poles, unless the relationship is self-evident.

These indications shall not be placed on screws or any other easily removable parts.

Compliance is checked by inspection.

8.102 Indication of the actual switch position

Two-, three-, and four-pole switches and switches having a rated voltage exceeding 250 V or a rated current exceeding 16 A shall be marked such that either the direction of movement of the actuating member to its different positions or the actual switch position is clearly indicated.

The indications shall be clearly visible on the front of the switched socket-outlet when fitted with its cover or cover plate. If these indications are placed on the cover or cover plate, it shall not be possible to fix it in a position such that the indications are incorrect.

For the indication of direction of movement of the operating means, symbols may be used.

The closed position (on) shall be clearly indicated.

Compliance is checked by inspection.

9 Checking of dimensions

IEC 60884-1:2022, Clause 9 is applicable.

10 Protection against electric shock

IEC 60884-1:2022, Clause 10 is applicable except as follows.

Addition:

10.101 Requirements for operating parts

Knobs, operating levers, push-buttons, rockers and the like, for operating switches in switched socket-outlets, shall be of insulating material, unless their accessible metal parts are separated from the metal parts of the mechanism by double insulation or reinforced insulation or, as an alternative, they are reliably connected to earth.

Compliance is checked by inspection and by the tests of Clause 17 and Clause 21.

10.102 Requirements for accessible metal parts

Metal parts of the switch mechanism, such as the spindle or the pivot of the dolly or rocker, that are not insulated from live parts, shall not protrude from the enclosure.

Compliance is checked by inspection, if necessary, after the actuating member has been removed or broken. If the actuating member has to be broken, compliance is checked after the test of Clause 28.

10.103 Requirements for insulation of the mechanism

Metal parts of the switch mechanism, such as the spindle or the pivot of the dolly or rocker shall not be accessible when the switched socket-outlet is fixed as in normal use.

In addition, these parts shall be insulated from accessible metal parts, including metal frames supporting the base of flush-type switched socket-outlets, liable to be mounted in a metal box, and from screws for fixing the base to its support.

The additional requirement does not apply if the metal parts of the mechanism are separated from live parts in such a way that the creepage distances and clearances have at least twice the values specified in 27.1 or alternatively, if they are reliably connected to earth.

Compliance is checked by inspection and, if necessary, by measurement and by tests of Clause 17 and Clause 20.

11 Provision for earthing

IEC 60884-1:2022, Clause 11 is applicable.

12 Terminals and terminations

IEC 60884-1:2022, Clause 12 is applicable.

13 Construction of fixed socket-outlets

IEC 60884-1:2022, Clause 13 is applicable except as follows.

Addition:

13.101 Construction of multiple switched socket-outlets

Multiple switched socket-outlets shall be constructed so that each socket-outlet is controlled by its own switch.

Compliance is checked by inspection.

13.102 Switch poles

Switches shall be constructed to match the number of poles on the socket-outlet, except that the neutral pole is not switched in unswitched neutral socket-outlets.

The earthing contact is not considered as a pole and the earth circuit shall not be switched.

The position of the switch-operating member shall be such that it does not prevent, nor shall its correct operation be prevented by the proper insertion of the corresponding plug or plugs.

NOTE In the following country, the switch shall switch both the line and neutral: ZA.

13.103 Actuating member

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

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

After this, knobs of switches having only one direction of operation are turned, if possible, without undue force, 100 times in the reverse direction.

During the test, the knob shall not become detached.

13.104 Indication of the position

The actuating member of a switch, when released, shall automatically take up the position corresponding to that of the moving contacts, except that, for those switches with a single push-button, the actuating member may take up a single rest position.

Compliance is checked by inspection and by manual test.

13.105 Rest and intermediate position

Switches shall be so constructed that the moving contacts can come to rest only in the "on" or "off" position, an intermediate position being, however, permissible if it corresponds to the intermediate position of the actuating member, and if the insulation between the fixed and moving contacts is then adequate.

Compliance is checked by inspection and, if necessary, by the test of 17.2 with the voltage applied between the fixed and moving contacts when in intermediate position.

13.106 Undue arcing

Switches shall be constructed so that undue arcing cannot occur when the switch is operated slowly.

Compliance is checked by actuating the switch, at the end of the test of Clause 21, to break the circuit a further ten times, the actuating member being, however, moved steadily by hand over a period of 2 s. If possible, the contacts shall be stopped in an intermediate position, the actuating member then being released.

During the tests, no sustained arcing shall occur.

13.107 Making and breaking

Switched socket-outlets with switches operating more than one pole shall make and break all poles substantially simultaneously, except that for multi-pole switches with switched neutral, the neutral shall not make after or break before other poles.

Compliance is checked by inspection and by manual test.

13.108 Action of the mechanism without cover or cover plate

The action of the mechanism, if the covers or cover plate are removable for installation purposes, shall be independent of the presence of the covers or cover plate.

Compliance is checked by connecting the switch, without cover or cover plate fitted, in series with a lamp and by operating the actuating member without undue force as in normal use.

During the test, the lamp shall not flicker.

14 Construction of plugs and portable socket-outlets

IEC 60884-1:2022, Clause 14 is not applicable.

15 Interlocked socket-outlets

IEC 60884-1:2022, Clause 15 is not applicable.

16 Resistance to ageing, protection provided by enclosures, and resistance to humidity

IEC 60884-1:2022, Clause 16 is applicable.

17 Insulation resistance and electric strength

IEC 60884-1:2022, Clause 17 is applicable except as follows.

17.2 Test for measuring the insulation resistance

17.2.1

Replacement of the last sentence:

The insulation resistance shall not be less than 5 MΩ, except for items g) and h) of 17.2.2, where the resistance shall not be less than 2 MΩ.

17.2.2

Addition at the end of Subclause 17.2.2:

For switches of switched socket-outlets, the insulation resistance is measured consecutively:

f) *between all poles connected together and the body, with the switch in the closed position (on);*

g) *between each pole in turn and all others connected to the body, with the switch in the closed position (on);*

h) *between the terminals which are electrically connected together when the switch is in the closed position (on), the switch being in the open position (off).*

The term "body" used in f) and g) includes accessible metal parts, metal frames supporting the base of flush type switched socket-outlets, operating keys, metal foil in contact with the outer surface of accessible external parts and operating keys of insulation material, the point of anchorage of the cord, chain or rod for switches operated by such means, fixing screws of bases or covers and cover plates, external assembly screws, earthing terminals and any metal part of the mechanism if required to be insulated from live parts (see 10.102).

18 Operation of earthing contacts

IEC 60884-1:2022, Clause 18 is applicable.

19 Temperature rise

IEC 60884-1:2022, Clause 19 is applicable.

20 Breaking capacity

IEC 60884-1:2022, Clause 20 is applicable except as follows.

Addition:

Switches incorporated in switched socket-outlets shall have adequate making and breaking capacity.

The tests are carried out by means of an apparatus, the principle of which is as shown in Figure 101 and which is arranged to simulate normal operation.

Switches are fitted with conductors as for the test of Clause 19.

Switches are tested at 1,1 times the rated voltage and 1,25 times the rated current. They are subjected to 200 operations at a uniform rate of:

– *30 operations per minute, if the rated current does not exceed 10 A;*

– *15 operations per minute, if the rated current exceeds 10 A but is less than 25 A;*

– *7,5 operations per minute, if the rated current is 25 A or more.*

NOTE See definition 3.104 for the definition of “one operation”.

For rotary switches intended to be operated in either direction, the actuating member is turned in one direction for half the total number of operations, and in the reverse direction for the remainder.

The test is carried out by using an alternating current (cos φ = 0,6 ± 0,05).

During the test no sustained arcing shall occur.

After the test, the *specimen shall show no damage which may impair its further use.*

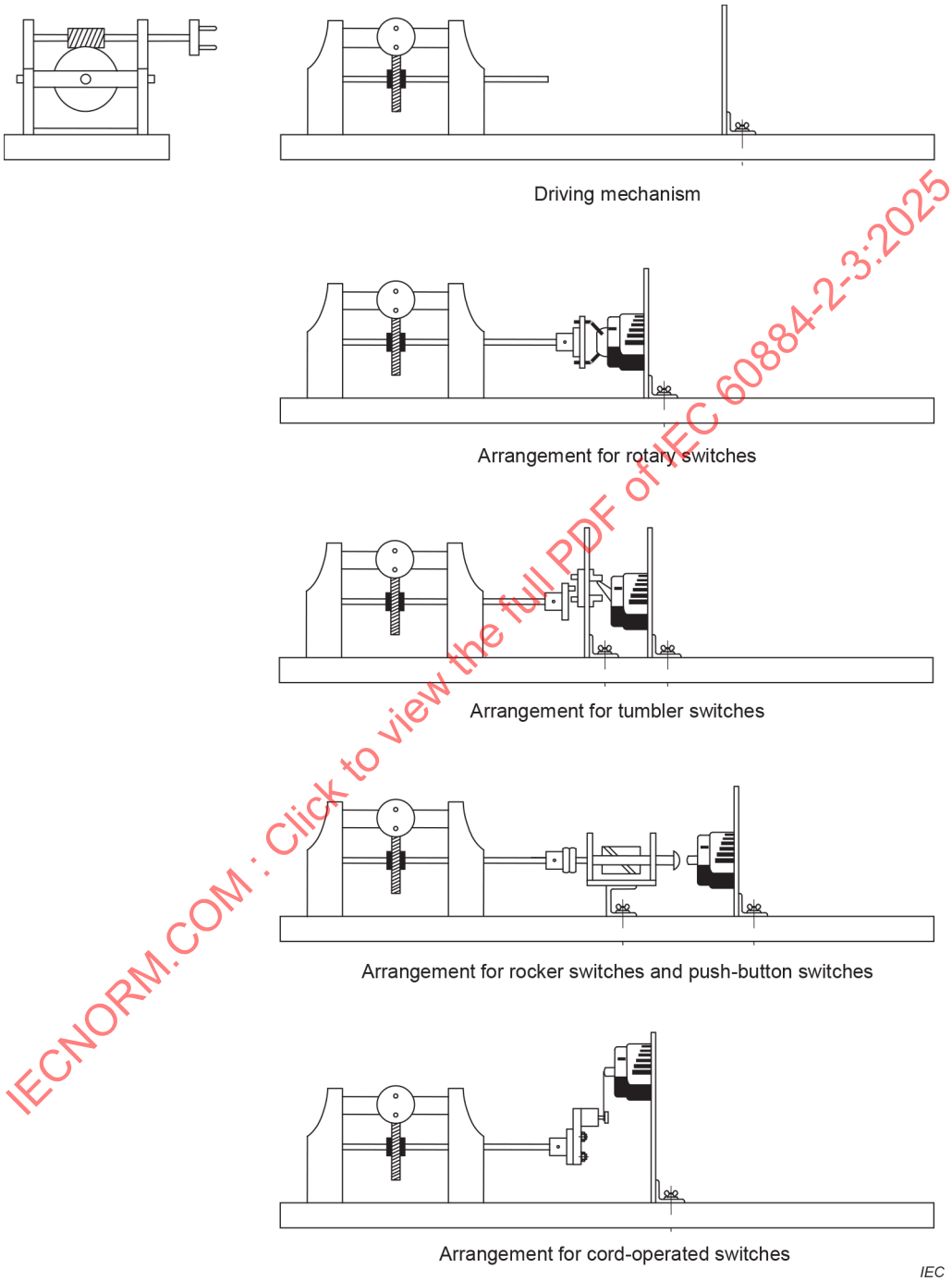

Figure 101 – Example of apparatus for testing the making and breaking capacity and the normal operation of switches in switched socket-outlets

21 Normal operation

IEC 60884-1:2022, Clause 21 is applicable except as follows.

Addition:

Switches of switched socket-outlets shall withstand, without excessive wear or other harmful effect, the mechanical, electrical and thermal stresses occurring in normal use.

Compliance is checked by the following test:

The switches are tested at rated voltage and rated current (cos φ = 0,8 ± 0,05) in the apparatus as specified in Clause 20.

The number of operations is as shown in Table 101.

Table 101 – Number of operations for normal operation test

Rated current	Number of operations
Up to and including 16 A for switches having a rated voltage not exceeding 250 V AC	40 000
Up to and including 16 A for switches having a rated voltage exceeding 250 V AC	20 000
Over 16 A up to and including 32 A	10 000

The rate of operations is according to Clause 20.

For rotary switches intended to be operated in either direction, three-quarters of the total number of operations shall be in the clockwise direction and the remainder in the reverse direction.

During the test, the specimens shall function correctly.

After the test, the specimens shall withstand an electric strength test as specified in Clause 17, and a temperature rise test as specified in Clause 19, the test current however being reduced to the rated current.

The specimens shall then not show:

– *wear impairing their further use;*
– *discrepancy between the position of the actuating member and that of the moving contacts, if the position of the actuating member is indicated;*
– *deterioration of enclosures, insulating linings or barriers to such an extent that the switch cannot be further operated or that the requirements of Clause 10 are no longer complied with;*
– *loosening of electrical or mechanical connections;*
– *seepage of sealing compound;*
– *relative displacement of the moving contacts of switches.*

The humidity treatment according to 16.3 is not repeated before the dielectric strength test of this Clause 21.

During the test, the specimens are not lubricated.

22 Force necessary to withdraw the plug

IEC 60884-1:2022, Clause 22 is applicable.

23 Flexible cables and their connection

IEC 60884-1:2022, Clause 23 is not applicable.

24 Mechanical strength

IEC 60884-1:2022, Clause 24 is applicable.

25 Resistance to heat

IEC 60884-1:2022, Clause 25 is applicable.

26 Screws, current-carrying parts and connections

IEC 60884-1:2022, Clause 26 is applicable.

27 Creepage distances, clearances and distances through sealing compound

IEC 60884-1:2022, Clause 27 is applicable except as follows.

Addition:

27.101 Additional requirement for switched socket-outlets

For switches incorporated in switched socket-outlets, creepage distances, clearances and distances through sealing compound shall not be less than the values shown in Table 102.