

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Switches for appliances –  
Part 2-6: Particular requirements for switches used in electric motor-operated  
hand-held tools, transportable tools and lawn and garden machinery**

**Interrupteurs pour appareils –  
Partie 2-6: Exigences particulières pour les interrupteurs utilisés sur les outils  
électroportatifs à moteur, les outils portables et les machines pour jardins et  
pelouses**

<https://www.internationalstandards.org/453979c5-4f56-450d-8fa8-4432880f38d0/iec-61058-2-6-2016>

WILSON



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INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

ICS 29.120.40

ISBN 978-2-8322-3467-9

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## SWITCHES FOR APPLIANCES –

**Part 2-6: Particular requirements for switches used  
in electric motor-operated hand-held tools, transportable  
tools and lawn and garden machinery**

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International Standard IEC 61058-2-6 has been prepared by subcommittee 23J: Switches for appliances, of IEC technical committee 23: Electrical accessories.

The text of this standard is based on the following documents:

FDIS	Report on voting
23J/402/FDIS	23J/406/RVD

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

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

This Part 2-6 is to be used in conjunction with IEC 61058-1:2000, *Switches for appliances – Part 1: General requirements*, and its Amendments 1 (2001) and 2 (2007).

This Part 2-6 supplements or modifies the corresponding clauses in IEC 61058-1, so as to convert that publication into the IEC standard: *Particular requirements for switches used in electric motor-operated hand-held tools, transportable tools and lawn and garden machinery*.

When a particular subclause of Part 1 is not mentioned in this Part 2-6, that subclause applies as far as reasonable. Where this standard states “addition”, “modification” or “replacement”, the relevant text of Part 1 is to be adapted accordingly.

In this standard:

- 1) the following print types are used:
  - requirements proper: in roman type;
  - *test specifications: in italic type*;
  - notes: in small roman type.
- 2) subclauses, notes, figures and tables which are additional to those in Part 1 are numbered starting from 101. Annexes which are additional to those in Part 1 are lettered AA, BB, etc.

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 publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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

## SWITCHES FOR APPLIANCES –

### Part 2-6: Particular requirements for switches used in electric motor-operated hand-held tools, transportable tools and lawn and garden machinery

#### 1 Scope

This clause of Part 1 is applicable, except as follows:

##### 1.1 Addition:

This standard is a subset based on IEC 61058-1. The clauses outlined below are intended to address the specific requirements for switches incorporated into or integrated with electric motor-operated hand-held tools, transportable tools and lawn and garden machinery.

This standard is intended for switches with an ambient temperature up to and including 55 °C.

Switches tested to IEC 61058-1 are considered to comply with this standard and additional testing is not required provided ratings, loads, and endurance are correct.

NOTE This Part 2-6 takes into account the fact that tests are conducted as part of the end product evaluation (e.g. products tested according to the IEC 60745 and IEC 62841 series, and lawn and gardening equipment tested according to the IEC 60335 series) and need not be conducted on the component switch.

#### 2 Normative references

This clause of Part 1 is applicable.

#### 3 Definitions

This clause of Part 1 is applicable.

#### 4 General requirements

This clause of Part 1 is applicable.

#### 5 General notes on tests

This clause of Part 1 is applicable.

#### 6 Rating

This clause of Part 1 is applicable.

#### 7 Classification

This clause of Part 1 is applicable, except as follows:



**7.1.3.2** This subclause is not applicable.

**7.1.3.3** This subclause is not applicable.

**7.1.5.3.1** This subclause is not applicable.

**7.1.5.3.2** This subclause is not applicable.

## 8 Marking and documentation

This clause of Part 1 is applicable, except as follows:

### 8.1 Addition:

Switches declared for use in appliances such as power tools are considered unique type (U.T) when referencing Table 3.

*Replacement of Table 3:*

**Table 3 – Switch information**

Characteristic	Means of information
SWITCH IDENTIFICATION –	UNIQUE TYPE REFERENCE U.T.
Manufacturer's name or trade mark	Marking (Ma)
Type reference (model or catalogue number)	Marking (Ma)
Identification that the switch is in compliance with this Part 2-6 (8.101)	Marking (Ma)
Type of appliance for which a switch shall be used (hand held tools, transportable tools, or lawn and garden machinery)	Documentation (Do)
Number of operating cycles (7.1.4)	Documentation (Do)
Degree of protection against electric shock, from outside an appliance (7.1.5.3)	Documentation (Do)
Number of contact only cycles (TC 7 for electronic switches) (17.2.4.7)	Documentation (Do)
For electronic switches, the duty-type S1 (7.1.16)	Documentation (Do)

*Addition:*

**8.101** The marking to indicate compliance with this Part 2-6 shall be "PT".

*Compliance is checked by inspection.*

## 9 Protection against electric shock

This clause of Part 1 is applicable, except as follows:

**9.1** This subclause is not applicable.

NOTE This subclause is covered in the end product standard.

**9.2** This subclause is not applicable.

NOTE This subclause is covered in the end product standard.



## 10 Provision for earthing

This clause of Part 1 is not applicable.

## 11 Terminals and terminations

This clause of Part 1 is applicable, except as follows:

**11.1.1.2** This subclause is not applicable.

NOTE This subclause is covered in the end product standard.

**11.1.1.3** This subclause is not applicable except Table 4.

NOTE This subclause is covered in the end product standard.

**11.1.1.4** This subclause is not applicable.

NOTE This subclause is covered in the end product standard.

**11.1.1.5** This subclause is not applicable.

**11.1.1.6** *Replacement:*

Terminals shall be designed so that the end of a conductor introduced into the hole is visible or that the insertion of the conductor is prevented by a stop if further insertion may reduce creepage distances and/or clearances or influence the mechanism of the switch.

*Compliance is checked by inspection.*

### 11.1.2 Screw-type terminals for unprepared conductors

*Addition:*

Screw type terminals for unprepared conductors are permitted but tested as part of the end product evaluation.

**11.1.2.1** This subclause is not applicable.

**11.1.2.2** This subclause is not applicable.

**11.1.2.3** This subclause is not applicable.

**11.1.3.1** *Replacement:*

Screwless terminals shall allow, according to their classification, the proper connection of conductors having cross-sectional areas as declared.

The intended disconnection of a conductor shall require an operation other than a pull at the conductor, such that it can be effected manually with or without the help of a tool in normal use.

**11.1.3.2** *Replacement:*

Screwless terminals shall withstand the mechanical stress occurring in normal use. The conductor shall be clamped reliably and between metal surfaces, except that, for screwless

terminals intended to be used in circuits carrying a current not exceeding 0,2 A, one of the surfaces may be non-metallic.

*Compliance is checked by the following test, which is carried out with uninsulated copper conductors, first having the largest declared cross-sectional area, and then having the smallest declared cross-sectional area:*

- a) *either rigid: five insertions and disconnections for solid conductors and one insertion and disconnection for stranded conductors; or*
- b) *flexible: five insertions and disconnections; or*
- c) *rigid and flexible: if the terminal can accept both types of conductors, the tests are carried out with rigid and flexible conductors for the number of times indicated above.*

*The conductors are inserted and disconnected for the number of times indicated above using new conductors each time, except for the last time, when the conductors used for the last but one insertion are clamped at the same place.*

*For each insertion, the conductors shall be either pushed as far as possible into the terminal or shall be inserted to ensure that the connection is adequate. After each insertion, the conductor is twisted through 90° in an axial direction and then subjected to a pull force of 35 N; the pull force is applied without jerks, for 1 min, in the direction of the axis of the conductor space.*

*If the terminal is declared as suitable for two or more conductors, the appropriate pull force is applied consecutively to each conductor. During the application of the pull force, the conductor shall not come out of the terminal. After these tests, neither the screwless terminals nor the clamping means shall have become loose.*

**11.1.3.4** This subclause of Part 1 is not applicable.

## **11.2 Terminals for prepared copper conductors and/or terminals requiring the use of a special purpose tool**

This subclause of Part 1 is applicable, except as follows:

### **11.2.1 Common requirements**

This subclause is not applicable.

**11.2.3.2** This subclause is not applicable.

### **11.2.4 Non-disconnectable screwless terminations**

*Addition:*

Non-disconnectable screwless terminations are permitted but tested as part of the end product evaluation.

**11.2.4.1** This subclause is not applicable.

**11.2.4.2** This subclause is not applicable.

**11.2.4.3** This subclause is not applicable.

**11.2.5.1** This subclause is not applicable.

**11.2.5.2** This subclause is not applicable.

### 11.2.5.3 Replacement:

Tabs shall allow the application and withdrawal of female connectors without damage to the switch so as not to impair compliance with this standard.

*Compliance is checked by applying a 10 N axial pull force without jerks. No damage or disengagement shall occur.*

11.2.5.4 This subclause is not applicable.

### 11.2.7 Solder terminations

*Addition:*

Solder terminations are permitted but tested as part of the end product evaluation.

11.2.7.1 This subclause is not applicable.

11.2.7.2 This subclause is not applicable.

11.2.7.3 This subclause is not applicable.

## 12 Construction

This clause of Part 1 is not applicable.

NOTE This clause is covered in the end product standard.

## 13 Mechanism

This clause of Part 1 is not applicable.

NOTE This clause is covered in the end product standard.

## 14 Protection against solid objects, ingress of water and humid conditions

This clause of Part 1 is applicable, except as follows:

### 14.3 Protection against humid conditions

*Replacement of the second paragraph:*

*Compliance is checked by the humidity treatment described in 14.3, followed by the test of 15.1. Cable inlet openings, if any, and drain-holes are left open. If a drain-hole is provided for a water-tight switch, it is opened.*

## 15 Insulation resistance and dielectric strength

This clause of Part 1 is applicable, except as follows:

### 15.1 Replacement:

The dielectric strength of switches shall be adequate.

Compliance is checked by the test of 15.3, the test being made immediately after the test of 14.3.

The test voltage according to Table 12 is applied in the case of

- *functional insulation: between the different poles of a switch. For the purpose of the test, all the parts of each pole are connected together;*
- *basic insulation: between all live parts connected together and a metal foil covering the outer accessible surface of the basic insulation and accessible metal parts in contact with the basic insulation;*
- *double insulation: between all live parts connected together and a metal foil covering the outer, normally not accessible surface of basic insulation and non-accessible metal parts; then: between two metal foils covering separately the inner, normally not accessible surface of supplementary insulation and connected to non-accessible metal parts, and the outer, accessible surface of supplementary insulation and connected to accessible metal parts;*
- *reinforced insulation: between all live parts connected together and a metal foil covering the outer accessible surface of reinforced insulation and accessible metal parts;*
- *contacts: between the open contacts of each pole of a switch at the test voltages for “across electronic disconnection”.*

The foils are not pressed into openings but are pushed into corners and the like by means of the standard test finger.

In cases where basic insulation and supplementary insulation cannot be tested separately, the insulation provided is subjected to the test voltages specified for reinforced insulation.

For electronic switches, the test is carried out at the test voltages for “across full disconnection” and “across micro-disconnection” only on electronic switches with mechanical switching devices connected in series with the semiconductor switching device.

For electronic switches, the tests are not carried out across protective impedances and poles interconnected by components.

**15.2** This subclause is not applicable.

## **16 Heating**

This clause of Part 1 is not applicable.

NOTE This clause is covered in the end product standard.

## **17 Endurance**

This clause of Part 1 is applicable, except as follows:

### **17.1.2 Replacement:**

The sequence of tests for all switches except electronic switches is as follows:

- when declared for locked rotor, a test at accelerated speed as specified in 17.2.4.9 (TC9);
- a test at accelerated speed as specified in 17.2.4.4 (TC4);
- a functional compliance test in accordance with 17.2.5.1 (TE1);
- a dielectric strength test in accordance with 17.2.5.3 (TE3).