

INTERNATIONAL STANDARD

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AMENDMENT 2
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Amendment 2

**Hand-held motor-operated electric tools –
Safety –**

**Part 1:
General requirements**

Amendement 2

*Outils électroportatifs à moteur –
Sécurité –*

*Partie 1:
Règles générales*

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FOREWORD

This amendment has been prepared by subcommittee 61F: Safety of hand-held motor-operated electric tools, of IEC technical committee 61: Safety of household and similar electrical appliances.

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

FDIS	Report on voting
61F/534/FDIS	61F/540/RVD

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

The committee has decided that the contents of the base publication and its amendments will remain unchanged until 2006. At this date, the publication will be

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- withdrawn;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

1 Scope

Replace the 2nd paragraph by the following:

So far as is practicable, this standard deals with the common hazards presented by hand-held tools which are encountered by all persons in the normal use and reasonably foreseeable misuse of the tools.

2 Normative references

Add the following normative references:

IEC 60417-DB¹⁾:2002, *Graphical symbols for use on equipment*

IEC 60760:1989, *Flat, quick connect terminations*

IEC 60884 (all parts), *Plugs and socket-outlets for household and similar purposes*

IEC 60998-2-1:2002, *Connecting devices for low-voltage circuits for household and similar purposes – Part 2-1: Particular requirements for connecting devices as separate entities with screw-type clamping units*

Delete the following normative references:

IEC 60083:1997, *Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC*

¹⁾ 'DB' refers to the on-line IEC database.

3 Definitions

3.1.2

Amend the existing text to read as follows:

Where in this standard the expressions “with the aid of a tool”, “without the aid of a tool”, and “requires the use of a tool”, are used, the word “tool” means a hand tool, for example a screwdriver, which may be used to operate a screw or other fixing means.

Replace the existing text of the following definitions with the new text as follows:

3.2.3

working voltage

maximum voltage, without the effect of transient voltages, to which the part under consideration is subjected when the tool is supplied at its rated voltage and operating under normal load

3.2.9

normal load

load to be applied to a tool at rated voltage or at the upper limit of the rated voltage range, to obtain rated input or rated current, any marking of short-time or intermittent operation being observed and, unless otherwise specified, heating elements, if any, being operated as in normal use

3.3.3

type X attachment

method of attachment of the supply cord so that it can easily be replaced

3.3.4

type Y attachment

method of attachment of the supply cord such that any replacement is intended to be made by the manufacturer, its service agent or similar qualified person

3.4.1

basic insulation

insulation, not necessarily including insulation used for functional purposes, applied to live parts to provide basic protection against electric shock

3.4.4

reinforced insulation

insulation of hazardous live parts which provides a degree of protection against electric shock equivalent to double insulation

NOTE Examples of reinforced insulation are a single layer or several layers which cannot be tested singly as basic insulation or supplementary insulation.

3.4.5

class I tool

tool in which protection against electric shock does not rely on basic, double or reinforced insulation only, but which includes an additional safety precaution in that conductive accessible parts are connected to the protective earthing conductor in the fixed wiring of the installation in such a way that conductive accessible parts cannot become live in the event of a failure of the basic insulation. Also considered as class I tools are tools with double insulation and/or reinforced insulation throughout having an earthing terminal or earthing contact

3.4.6 **class II tool**

tool in which protection against electric shock does not rely on basic insulation only, but in which additional safety precautions, such as double insulation or reinforced insulation, are provided, there being no provision for protective earthing or reliance upon installation conditions

3.4.8 **class III tool**

tool in which protection against electric shock relies on supply at safety extra-low voltage, and in which voltages higher than those of safety extra-low voltages are not generated

3.4.10 **creepage distance**

shortest path between two conductive parts, or between a conductive part and the outer surface of the enclosure, considered as though metal foil were pressed into contact with accessible surfaces of insulating material, measured along the surface of the insulating material

NOTE Examples of creepage distances are given in Annex A.

3.4.11 **clearance**

shortest distance between two conductive parts, or between a conductive part and the outer surface of the enclosure, considered as though metal foil were pressed into contact with accessible surfaces of insulating material, measured through air

NOTE Examples of clearance distances are given in Annex A.

3.5.2 **safety extra-low voltage**

rated voltage not exceeding 42 V between conductors and between conductors and earth, the no-load voltage not exceeding 50 V. When safety extra-low voltage is obtained from the supply mains, it is to be through a safety isolating transformer or a convertor with separate windings, the insulation of which complies with double or reinforced insulation requirements

3.6.1 **hand-held tool (in this standard abbreviated to “tool”)**

electric motor-operated or magnetically-driven machine intended to do mechanical work, with or without provisions for mounting on a support, and so designed that the motor and the machine form an assembly which can easily be brought to the place of operation, and which is either held or supported by hand or suspended during operation

NOTE Hand-held tools may be provided with a flexible shaft, the motor being either fixed or portable.

3.8.2 **temperature limiter**

temperature-sensing device, the operating temperature of which may be either fixed or adjustable, and which, during normal operation, operates by opening or closing a circuit when the temperature of the controlled part reaches a predetermined value. It does not make the reverse operation during the normal duty cycle of the tool

3.8.4 **self-resetting thermal cut-out**

thermal cut-out which automatically restores the current after the relevant part of the tool has cooled down to a given value

3.9.2 **“off” position of a switching device**

stable position in which the related circuit is disconnected from the supply mains

NOTE The “off” position does not imply an all-pole disconnection.

3.9.4**live part**

any conductor or conductive part intended to be energized in normal use, including a neutral conductor but, by convention, not a PEN conductor.

3.10.1**electronic component**

part in which conduction is achieved principally by electrons moving through a vacuum, gas or semiconductor, with the exclusion of neon indicators

3.10.3**protective impedance**

impedance connected between live parts and accessible conductive parts, and of value so that the current is limited to a safe value

3.11.3**short-time operation**

operation under normal load for a specified period, starting from cold, the intervals between each period of operation being sufficient to allow the tool to cool down approximately to ambient temperature

3.12.2**attachment**

device attached to the housing or other component of the tool and which may or may not be attached to the output mechanism and does not modify the normal use of the tool within the scope of this standard

Delete definitions 3.9.2 and 3.11.2 and renumber the subsequent definitions accordingly.

Add the following new definition.

3.2.11**normal use**

use of a tool for which it is designed, taking into account the manufacturer's instructions

4 General requirements

Amend the first paragraph to read as follows:

Tools shall be so constructed that in normal use they function safely so as to cause no danger to persons or surroundings, even in the event of reasonably foreseeable misuse.

5 General conditions for the tests

5.5 *Amend the first paragraph to read as follows:*

Tools provided with controls or switching devices are tested with these controls or devices adjusted to their most unfavourable settings, if the setting can be altered by the user. Electronic speed control devices are set for the highest speed.

5.7.1 *Amend the second paragraph to read as follows:*

Tools for a.c. which are not marked with rated frequency, or marked with a frequency range of 50 Hz to 60 Hz, are tested with either 50 Hz or 60 Hz, whichever is the more unfavourable.

5.7.3 Amend the last paragraph to read as follows:

When a factor is not specified, the input corresponds to the input at the most unfavourable rated voltage within the range.

5.8 Amend the existing text to read as follows:

When alternative attachments are made available for the tool by its manufacturer, the tool is tested with those attachments which give the most unfavourable results.

5.14 Amend the existing text to read as follows:

For attachments performing a function which is within the scope of one of the relevant parts 2, the tests are made in accordance with that part 2.

For other attachments, the tests are made in accordance with manufacturer's instructions; in the absence of such instructions, the tool is operated continuously at a load at which rated input or rated current is attained.

7 Classification**7.2** Amend the first paragraph to read as follows:

Tools shall have the appropriate degree of protection against harmful ingress of water according to IEC 60529. If a degree other than IPX0 is required this shall be specified in the relevant part 2.

8 Marking and instructions**8.1** Amend the fourth and fifth dashed items to read as follows:

- name or trade mark or identification mark or company name of the manufacturer or any other person responsible for placing the tool on the market;
- designation of series or type;

8.6 Amend the first sentence to read as follows:

If units or technical data are expressed by symbols, the following symbols shall be used:

Delete the fifth paragraph, beginning "The symbol for class II tools..."

Amend the sixth and seventh paragraphs to read as follows:

When other units are used, the units and their symbols shall be those of the international standardized system. Multiple or submultiple units are also allowed.

Additional symbols are allowed, provided they do not give rise to misunderstanding.

8.7

Delete the note.

8.10 Amend the first paragraph to read as follows: