

# INTERNATIONAL STANDARD

Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety –  
Part 4-5: Particular requirements for grass shears

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IEC Central Office  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

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INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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## CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references .....	7
3 Terms and definitions .....	8
4 General requirements .....	11
5 General conditions for the tests .....	11
6 Radiation, toxicity and similar hazards.....	12
7 Classification.....	12
8 Marking and instructions.....	12
9 Protection against access to live parts.....	14
10 Starting .....	14
11 Input and current .....	14
12 Heating.....	14
13 Resistance to heat and fire .....	15
14 Moisture resistance .....	15
15 Resistance to rusting.....	15
16 Overload protection of transformers and associated circuits .....	15
17 Endurance .....	16
18 Abnormal operation .....	16
19 Mechanical hazards.....	16
20 Mechanical strength .....	28
21 Construction .....	35
22 Internal wiring.....	38
23 Components .....	38
24 Supply connection and external flexible cords .....	38
25 Terminals for external conductors.....	40
26 Provision for earthing .....	40
27 Screws and connections .....	40
28 Creepage distances, clearances and distances through insulation.....	40
Annexes .....	45
Annex I (informative) Measurement of noise and vibration emissions.....	45
Annex K (normative) Battery tools and battery packs .....	53
Annex L (normative) Battery tools and battery packs provided with mains connection or non-isolated sources.....	62
Annex AA (normative) Safety signs for safety instructions and warnings .....	67
Annex BB (informative) Example of a material and construction fulfilling the requirements for an artificial surface .....	69
Bibliography.....	71
Figure 101 – Cutting device with one cutter blade and shear plate.....	9
Figure 102 – Cutting device with two cutter blades .....	10

Figure 103 – Examples of grass shears .....	11
Figure 104 – Measurement of handle dimensions .....	18
Figure 105 – Measurement of handle dimensions for machines fitted with an extension shaft .....	19
Figure 106 – Minimum radial clearance around the power switch .....	19
Figure 107 – Examples of handle attachment and measurement of distance for hand protection .....	22
Figure 108 – Measurement of distance for hand protection for machines with a front hand barrier .....	24
Figure 109 – Measurement of distance for hand protection for machines with bail or closed handles or centrally supported (i.e. T-type) handles without a front hand barrier .....	25
Figure 110 – Projection incorporated as an integral part of a cutter blade .....	26
Figure 111 – Projection incorporated as an integral part of a shear plate .....	27
Figure 112 – Projection as a separate stationary plate .....	28
Figure 113 – Grass shear positions for drop test .....	31
Figure 114 – Impact test apparatus for handle insulation .....	33
Figure 115 – Cutting device strength test .....	34
Figure 116 – Example of a lock-off device located within the gripping surface of a handle .....	37
Figure 117 – Example of an operator presence sensor .....	38
Figure 118 – Test assembly for accessibility of attachment plug blades .....	39
Figure I.101 – Microphone positions on the hemisphere (see Table I.101) .....	45
Figure I.102 – Positions of transducers for grass shears .....	51
Figure AA.1 – Safety sign illustrating – "DANGER – Keep hands away from blade" .....	67
Figure AA.2 – Alternative safety sign illustrating – "DANGER – Keep hands away from blade" .....	67
Figure AA.3 – Safety sign illustrating – "Do not expose to rain" .....	68
Figure AA.4 – Safety sign illustrating – "Remove plug from the mains immediately if the cable is damaged or cut" .....	68
Figure AA.5 – Safety sign illustrating – "Wear ear protection" .....	68
Figure BB.1 – Sketch of the measurement surface covered with an artificial surface .....	70
Table 4 – Required performance levels .....	16
Table 7 – Switch trigger force .....	35
Table 12 – Minimum creepage distances and clearances .....	42
Table I.101 – Coordinates of microphone positions .....	47
Table I.102 – Absorption coefficients .....	47
Table 301 – Pull and torque value .....	58
Table K.1 – Minimum creepage distances and clearances between parts of different potential .....	59
Table K.2 – Minimum total sum of creepage distances and clearances to accessible surfaces .....	60

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE  
TOOLS AND LAWN AND GARDEN MACHINERY –  
SAFETY –**

**Part 4-5: Particular requirements for grass shears**

**FOREWORD**

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IEC 62841-4-5 has been prepared by IEC technical committee 116: Safety of motor-operated electric tools. It is an International Standard.

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

FDIS	Report on voting
116/495/FDIS	116/502/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](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

This Part 4-5 is to be used in conjunction with the first edition of IEC 62841-1:2014.

This Part 4-5 supplements or modifies the corresponding clauses in IEC 62841-1, so as to convert it into the IEC Standard: Particular requirements for grass shears.

Where a particular subclause of Part 1 is not mentioned in this Part 4-5, that subclause applies as far as relevant. Where this standard states "addition", "modification" or "replacement", the relevant text in Part 1 is to be adapted accordingly.

The following print types are used:

- requirements: in roman type;
- *test specifications: in italic type;*
- notes: in small roman type.

The terms defined in Clause 3 are printed in **bold typeface**.

Subclauses, notes, tables and figures which are additional to those in Part 1, except as described for Annex K and Annex L below, are numbered starting from 101.

Subclauses, notes, tables and figures in Annex K and Annex L which are additional to those in the main body of this Part 4-5 are numbered starting from 301.

[IEC 62841-4-5:2021](http://www.iec.ch/standardsdev/publications)

A list of all parts of the IEC 62841 series, under the general title *Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety*, 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.

NOTE The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 36 months from the date of publication.

## INTRODUCTION

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent. IEC takes no position concerning the evidence, validity, and scope of this patent right.

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# ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE TOOLS AND LAWN AND GARDEN MACHINERY – SAFETY –

## Part 4-5: Particular requirements for grass shears

### 1 Scope

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

*Addition:*

This document applies to **grass shears** with a maximum **cutting width** of 200 mm designed primarily for cutting grass.

This document does not apply to hedge trimmers.

NOTE 101 Hedge trimmers are covered by IEC 62841-4-2.

### 2 Normative references

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

*Addition:*

[IEC 62841-4-5:2021](#)

[https://standards.iteh.ai/catalog/standards/sist/bb574bb5-0cdd-4300-9a52-](https://standards.iteh.ai/catalog/standards/sist/bb574bb5-0cdd-4300-9a52-bfb432521099/iec-62841-4-5-2021)

IEC 60664-3, *Insulation coordination for equipment within low-voltage systems – Part 3: Use of coating, potting or moulding for protection against pollution*

IEC 60664-4, *Insulation coordination for equipment within low-voltage systems – Part 4: Consideration of high-frequency voltage stress*

ISO 354:2003, *Acoustics – Measurement of sound absorption in a reverberation room*

ISO 22868:2011<sup>1</sup>, *Forestry and gardening machinery – Noise test code for portable hand-held machines with internal combustion engine – Engineering method (Grade 2 accuracy)*

*Replacement:*

ISO 3744:2010, *Acoustics – Determination of sound power levels and sound energy levels of noise sources using sound pressure – Engineering methods for an essentially free field over a reflecting plane*

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<sup>1</sup> Withdrawn.

### 3 Terms and definitions

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

#### 3.101

##### **blade tooth**

part of the **cutter blade** which is sharpened to perform the shearing action

Note 101 to entry: See Figure 101 and Figure 102.

#### 3.102

##### **cutter blade**

part of the **cutting device** having **blade teeth** which cut by shearing action either against other **blade teeth** or against a **shear plate**

Note 101 to entry: See Figure 101 and Figure 102.

#### 3.103

##### **cutting device**

part of the assembly of **cutter blade** and **shear plate** or of two **cutter blades** together with any supporting part which performs the cutting action

Note 101 to entry: See Figure 101 and Figure 102.

#### 3.104

##### **cutting width**

effective width of cut of the **cutting device** measured from the inside edge of the first **blade tooth** or **shear plate** tooth to the inside edge of the last **blade tooth** or **shear plate** tooth, whichever is the greater

Note 101 to entry: See Figure 101 and Figure 102.

#### 3.105

##### **extension shaft**

shaft which enables the operator to cut grass while in a standing position, which is either permanently attached to or removable from the machine

#### 3.106

##### **grass shear**

hand-held scissors type grass-cutting machine with either one or two **cutter blades** where either one or both **cutter blade(s)** reciprocate along a straight or curved path

Note 101 to entry: See Figure 103.

Note 102 to entry: These machines are intended to be held in the hand during **normal use**, including machines which will not maintain their operating position unless supported, possibly with an **extension shaft** and/or assisted by wheel(s), skid(s) or similar.

#### 3.107

##### **maximum speed**

highest **cutting device** speed attainable under all conditions of **normal use**, including no-load

#### 3.108

##### **operator presence sensor**

device to detect the presence of an operator's hand

#### 3.109

##### **projection**

part of the **cutter blade** or **shear plate** or a separate component which extends beyond the shearing portion of the **cutting device**

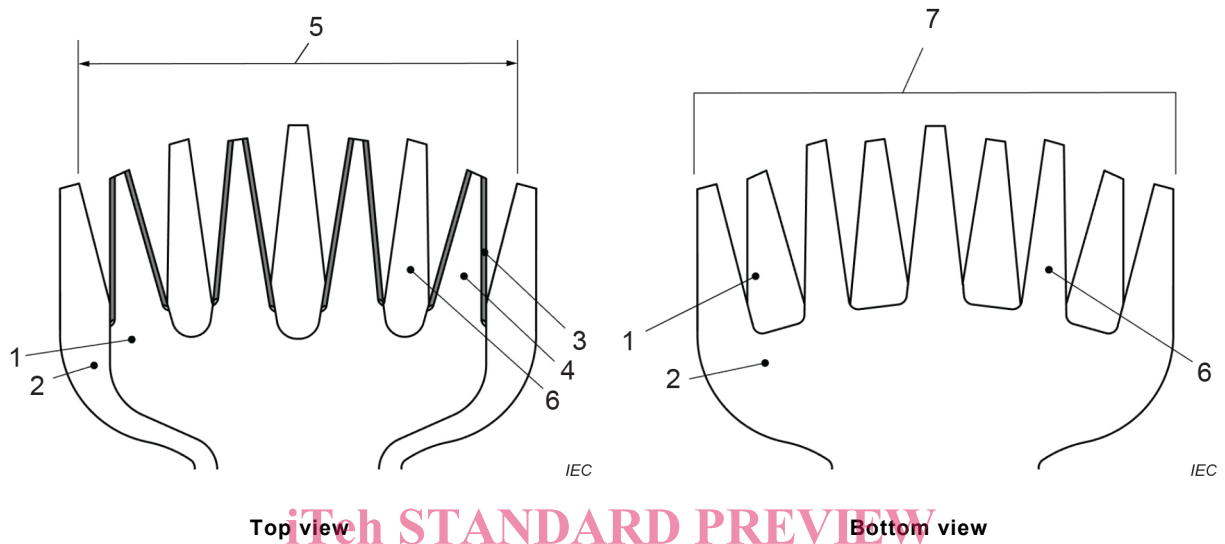
Note 101 to entry: See Figure 110, Figure 111 and Figure 112.

### 3.110

#### shear plate

moving or stationary unsharpened part of the **cutting device** which assists cutting by shearing action against a **cutter blade**

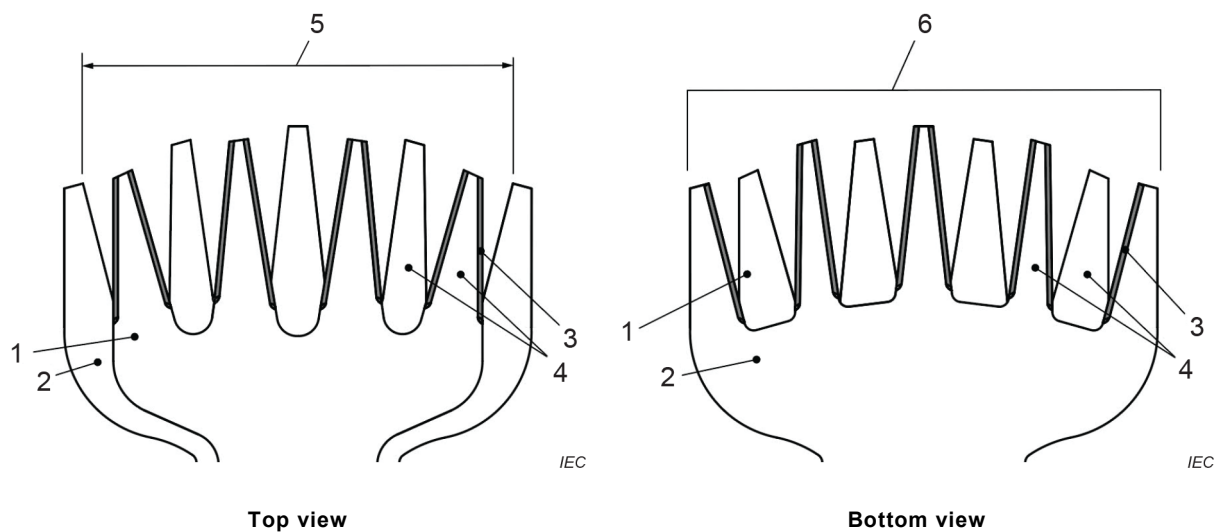
Note 101 to entry: See Figure 101.



#### Key

- 1 **cutter blade**
- 2 **shear plate with projections**
- 3 sharpened edge of **blade tooth**
- 4 **blade tooth**
- 5 **cutting width**
- 6 portion of **shear plate** which assists cutting by shearing action against a **cutter blade**
- 7 **cutting device**

**Figure 101 – Cutting device with one cutter blade and shear plate**



**Key**

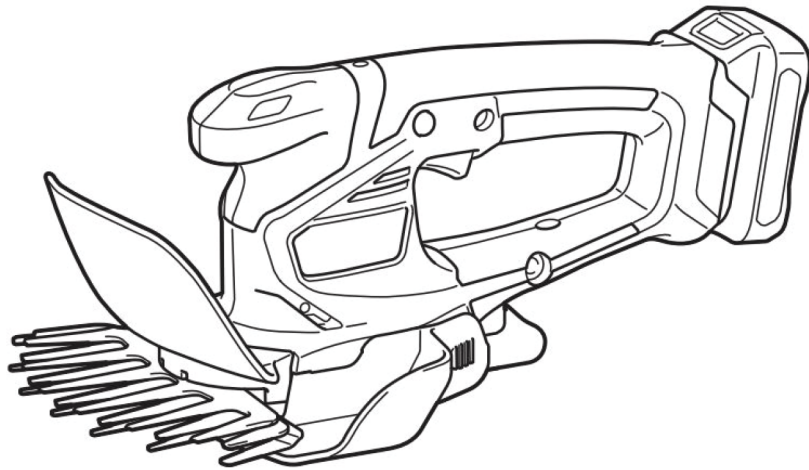
- 1 **cutter blade (top)**
- 2 **cutter blade (bottom) with projections**
- 3 **sharpened edge of blade tooth**
- 4 **blade tooth**
- 5 **cutting width**
- 6 **cutting device**

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**Figure 102 – Cutting device with two cutter blades**

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a) Grass shear without extension shaft



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b) Grass shear with extension shaft

**Figure 103 – Examples of grass shears**

#### 4 General requirements

This clause of Part 1 is applicable.

#### 5 General conditions for the tests

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

### 5.8 Addition:

If different **cutting devices** for cutting grass can be mounted on the machine in accordance with 8.14.2 a) and 8.14.2 b), the **cutting devices** are regarded as **attachments**.

### 5.17 Addition:

The mass of the machine excludes the **cutting device cover**.

**5.101** The tests are carried out on the machine as supplied. However, a machine constructed as a single machine but supplied in a number of units is tested after assembly in accordance with 8.14.2.

**5.102** Unless otherwise specified, for Clauses 19 and 21, machines are tested in each operating configuration as described in 8.14.2.

**5.103** For machines that do not attain **maximum speed** under no load conditions, the manufacturer shall provide samples with special hardware and/or software in order to perform the required tests.

## 6 Radiation, toxicity and similar hazards

This clause of Part 1 is applicable.

## 7 Classification

This clause of Part 1 is applicable.

## 8 Marking and instructions

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

### 8.2 Addition:

**Grass shears** shall be marked with the following safety information, as applicable, which shall be written in one of the official languages of the country in which the machine is to be sold or marked with the appropriate symbol.

For all machines:

- “Wear ear protection”, a relevant safety sign of ISO 7010 or the safety sign specified in Figure AA.5. This marking may be omitted if the measured emission sound pressure level at the operator’s ear in accordance with Annex I does not exceed 85 dB(A); and
- "⚠DANGER – Keep hands away from blade"; or
- the safety sign specified in Figure AA.1; or
- the safety sign specified in Figure AA.2.

The DANGER marking or symbol shall be readily visible to the user and shall not be located on the underside of the machine.

For all machines with a degree of protection of less than IPX4:

- "⚠️WARNING – Do not expose to rain"; or
- the safety sign specified in Figure AA.3.

For mains supplied machines:

- "⚠️WARNING – Remove plug from the mains immediately if the cable is damaged or cut"; or
- the safety sign specified in Figure AA.4.

#### 8.12 Replacement of the first paragraph:

Markings required by the standard shall be legible and durable. Signs shall be in contrast such as colour, texture, or relief, to their background such that the information or instructions provided by the signs are clearly legible when viewed with normal vision from a distance of (500 ± 50) mm. Signs need not be in accordance with the colour requirements of ISO 3864-2.

If markings are embossed, stamped or moulded, contrasting colours are not required.

#### 8.14.1 Addition:

The additional safety instructions as specified in 8.14.1.101 shall be given for all mains supplied **grass shears**. This part may be printed separately from the "General Machine Safety Warnings".

NOTE 101 "General Machine Safety Warnings" are referred to as "General Power Tool Safety Warnings" in Part 1.

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#### 8.14.1.1 Addition to item 2) c): <https://standards.iteh.ai/catalog/standards/sist/bb574bb5-0cdd-4300-9a52-bfb432521099/iec-62841-4-5-2021>

For machines classified at least IPX4, the warning may be replaced as specified below.

- c) **Do not operate the machine in rain or wet conditions.** *Water entering the machine may increase the risk of electric shock or malfunction that could result in personal injury.*

#### 8.14.1.101 Safety instructions for grass shears

For **grass shears** that can be converted to a Category 1 hedge trimmer, the term "grass shear" may be replaced by alternate wording (e.g. "grass shear/hedge trimmer" or "grass shear/shrub shear"). For this case, the verbatim warnings below need not be repeated for the two configurations.

#### Grass shears safety warnings:

- Do not use the grass shear in bad weather conditions, especially when there is a risk of lightning.** *This decreases the risk of being struck by lightning.*
- Keep all power cords and cables away from cutting area.** *Power cords or cables may be hidden and can be accidentally cut by the blade.*
- Wear ear protection.** *Adequate protective equipment will reduce the risk of hearing loss.*

NOTE 101 This warning can be omitted if the measured emission sound pressure level at the operator's ear in accordance with Annex I does not exceed 85 dB(A).

- Hold the grass shear by insulated gripping surfaces only, because the blade may contact hidden wiring or its own cord.** *Blades contacting a "live" wire may make exposed metal parts of the grass shear "live" and could give the operator an electric shock.*