

# INTERNATIONAL STANDARD

Household and similar electrical appliances – Safety –  
Part 2-94: Particular requirements for scissors type grass shears  
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –  
SAFETY –**

**Part 2-94: Particular requirements for scissors type grass shears**

FOREWORD

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International Standard IEC 60335-2-94 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 standard is based on the following documents:

|              |                  |
|--------------|------------------|
| FDIS         | Report on voting |
| 61F/704/FDIS | 61F/712/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 third edition cancels and replaces the second edition, published in 2002. It constitutes a technical revision. The main updates concern mechanical hazards, construction, endurance and resistance to rusting.

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

This part 2 is to be used in conjunction with the latest edition of IEC 60335-1 and its amendments. It was established on the basis of the fourth edition (2001) of that standard.

NOTE 1 When "Part 1" is mentioned in this standard, it refers to IEC 60335-1.

This part 2 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert that publication into the IEC standard: Safety requirements for scissors type grass shears.

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

NOTE 2 The following numbering system is used:

- subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
- unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;
- additional annexes are lettered AA, BB, etc.

NOTE 3 The following print types are used:

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

Words in **bold** in the text are defined in Clause 3. When a definition concerns an adjective, the adjective and the associated noun are also in bold.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site 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.

A bilingual version of this publication may be issued at a later date.

## INTRODUCTION

It has been assumed in the drafting of this International Standard that the execution of its provisions is entrusted to appropriately qualified and experienced persons.

This standard recognizes the internationally accepted level of protection against hazards such as electrical, mechanical, thermal, fire and radiation of appliances when operated as in normal use taking into account the manufacturer's instructions. It also covers abnormal situations that can be expected in practice.

This standard takes into account the requirements of IEC 60364 as far as possible so that there is compatibility with the wiring rules when the appliance is connected to the supply mains. However, national wiring rules may differ.

If an appliance within the scope of this standard also incorporates functions that are covered by another part 2 of IEC 60335, the relevant part 2 is applied to each function separately, as far as is reasonable. If applicable, the influence of one function on the other is taken into account.

This standard is a product family standard dealing with the safety of appliances and takes precedence over horizontal and generic standards covering the same subject.

An appliance that complies with the text of this standard will not necessarily be considered to comply with the safety principles of the standard if, when examined and tested, it is found to have other features that impair the level of safety covered by these requirements.

An appliance employing materials or having forms of construction differing from those detailed in the requirements of this standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be considered to comply with the standard.



## HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

### Part 2-94: Particular requirements for scissors type grass shears

#### 1 Scope

This clause of Part 1 is replaced by the following.

This standard deals with the safety of electric powered **hand-held scissors type grass shears** with a maximum cutting width of 200 mm designed primarily for cutting grass, their **rated voltage** being not more than 250 V for a.c. or 50 V d.c.

The term “grass shear” within this standard means “electric powered scissors type grass shear”.

So far as is practicable, this standard deals with the common hazards presented by **grass shears** which are encountered by all persons in the normal use and reasonably foreseeable misuse.

NOTE 101 Attention is drawn to the fact that in many countries, additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour, the national water supply authorities and similar authorities.

Requirements for chargers are covered by IEC 60335-2-29.

EMC and environmental aspects ~~except for noise~~ have not been considered in this standard.

#### 2 Normative references

This clause of Part 1 is applicable except as follows.

*Addition:*

IEC 60320, *Appliance couplers for household and similar general purposes*

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

ISO 3744:1994, *Acoustics – Determination of sound power levels of noise sources using sound pressure – Engineering method in an essentially free field over a reflecting plane*

ISO 3767-1:1998, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment – Symbols for operator controls and other displays – Part 1: Common symbols*

ISO 3767-3: 1995, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment – Symbols for operator controls and other displays – Part 3: Symbols for powered lawn and garden equipment*

ISO 8662-1:1988, *Hand-held portable power tools – Measurement of vibrations at the handle – Part 1: General*

ISO 11201:1995, *Acoustics – Noise emitted by machinery and equipment – Measurement of emission sound pressure levels at a work station and at other specified positions – Engineering method in an essentially free field over a reflecting plane*

ISO 11684: 1995, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment – Safety signs and hazard pictorials – General principles*

ISO/TR 11688-1:1995, *Acoustics – Recommended practice for the design of low-noise machinery and equipment – Part 1: Planning*

ISO 12100-1, *Safety of machinery – Basic concepts and general principles for design – Part 1: Basic terminology, methodology*

ISO 13852:1996, *Safety of machinery – Safety distances to prevent danger zones being reached by the upper limbs*

EN 12449:1999, *Copper and copper alloys – Seamless, round tubes for general purposes*

### 3 Definitions

This clause of Part 1 is applicable except as follows.

**3.1.9 Replacement:** **normal operation**  
operation of the appliance at rated voltage with the load necessary to obtain rated power input

**3.5.2 Replacement:** **hand-held appliance**  
portable appliance intended to be held in the hand during normal use, including appliances which will not maintain their operating position unless supported, possibly with an extension shaft and/or assisted by wheel(s), skid(s) or similar

**3.101**  
**width of cut**  
the effective cutting width 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 (see Figure 101)

**3.102**  
**scissors type grass shears**  
grass-cutting machine with two blades where the one cutter blade reciprocates along a straight or curved path (see Figure 102)

**3.103**  
**blade tooth**  
part of the **cutter blade** which is sharpened to perform the shearing action (see Figure 101)

**3.104**  
**cutter blade**  
part of the **cutting means** having blade teeth which cut by shearing action against the teeth of the shear plate (see Figure 101)

**3.105**  
**cutting means**  
cutter blade and shear plate together with any supporting part(s), which together perform the cutting action

**3.106****cutting means control**

device, activated by the operator's hand or finger, for controlling the operation of the **cutting means**

**3.107****no load**

operation of the appliance at rated voltage with the cutting means attached

**3.108****extension shaft**

optional shaft which is designed to be fitted to a hand-held grass shear to enable the operator to cut grass while in a standing position

**3.109****power switch**

device that turns on and off the electric power and/or electronically activates and deactivates the function(s) of the tool

**4 General requirement**

This clause of Part 1 is applicable.

**5 General conditions for the tests**

This clause of Part 1 is applicable.

**6 Classification**

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This clause of Part 1 is applicable except as follows.

**6.1 Replacement:**

**Scissors type grass shears** shall be of **class II** or **class III**.

*Compliance is checked by inspection and by the relevant tests.*

**7 Marking and instructions**

This clause of Part 1 is applicable except as follows.

**7.1 Addition:**

Add the following indents:

- manufacturer's address or country of origin;
- year of manufacture; in 4 digits.

Add the following new paragraphs:

The following warnings shall be located in easily visible positions, indicating:

- Warning: Read instruction manual.
- Warning: Do not expose to moisture.

Warning: **Cutting means** continues to run after the motor is switched off.

Warning: Keep bystanders away.

Mains-operated appliances shall also be marked with the substance of the following:

- Disconnect the mains plug if the cord is damaged or entangled.

Marking giving cautionary information shall be located as close as practicable to the relevant hazard. Such marking shall be in one of the official languages of the country in which the appliance is to be sold or safety signs and symbols according to Annex AA may be used. Symbols according to ISO 3767-1, ISO 3767-3 and ISO 11684 may also be used, as appropriate. Colours shall be in accordance with ISO 3767-1 and/or ISO 11684 as appropriate, unless the symbols are cast, embossed or stamped when colours are not required. If symbols are used, their significance shall be described in the instruction manual.

#### 7.12 Addition:

An operator's manual shall be supplied with the machine. This shall include

- a) a repeat of those warnings required to be marked on the appliance together with further explanation, where appropriate. Where symbols or safety signs are used in the marking on the appliance, their function shall be explained;
- b) instructions for the proper assembly of the appliance for use, if the appliance is not supplied in a completely assembled form;
- c) instructions for proper adjustment and maintenance of the appliance;
- d) where parts are consumable, the part number of the replacement shall be specified;
- e) instructions on the operation of all controls;
- f) advice on the use and type of extension cords to be used (not lighter than required by 25.7);
- g) instructions for the safe operation, preparation, maintenance and storage of the appliance such as those given as an example in Annex EE.

## 8 Protection against access to live parts

This clause of Part 1 is applicable.

## 9 Starting of motor-operated appliances

This clause of Part 1 is not applicable.

## 10 Power input and current

This clause of Part 1 is not applicable.

## 11 Heating

This clause of Part 1 is applicable except as follows.

11.4 Not applicable.

11.5 Replacement:

The grass shear is operated in still air under **normal operation** conditions until a steady state is reached, the torque being applied is measured. While the torque is maintained, the voltage

is then adjusted to 0,94 times the rated voltage or 1,06 times the rated voltage, or the mean of the rated voltage range, whichever is the most unfavourable.

**11.6** Not applicable.

**11.7** *Replacement:*

*Appliances are operated until steady conditions are established.*

## **12 Void**

## **13 Leakage current and electric strength at operating temperature**

This clause of Part 1 is applicable.

## **14 Transient overvoltages**

This clause of Part 1 is applicable.

## **15 Moisture resistance**

This clause of Part 1 is applicable.

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## **16 Leakage current and electric strength**

This clause of Part 1 is applicable.

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## **17 Overload protection of transformers and associated circuits**

This clause of Part 1 is applicable.

## **18 Endurance**

This clause of Part 1 is replaced as follows.

**18.101 Grass shears** shall be so constructed that, in normal use, there will be no electrical or mechanical failure that might impair compliance with this standard. The insulation shall not be damaged and contacts and connections shall not work loose as a result of heating, vibrations, etc.

Moreover, overload protection devices shall not operate under normal running conditions.

*Compliance is checked by the test of 18.102.*

*Immediately after the test, the tool shall withstand an electric strength test as specified in Clause 16, the test voltages being, however, reduced to 75 % of the specified values. Connections shall not have worked loose, and there shall be no deterioration impairing safety in normal use.*

**18.102** *The grass shear is operated with the plane of the **cutting means** horizontal and at no load for 15 h of operation at a voltage equal to 1,1 times rated voltage, and then for 15 h at*