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**Gospodinjski in podobni električni aparati - Varnost - 2-91. del: Posebne zahteve za ročno vodljive in prenosne motorne kose za trate in robove trat (IEC 60335-2-91:2002; spremenjen)**

Household and similar electrical appliances - Safety - Part 2-91: Particular requirements for walk-behind and hand-held lawn trimmers and lawn edge trimmers

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English version

**Household and similar electrical appliances -  
Safety  
Part 2-91: Particular requirements for walk-behind  
and hand-held lawn trimmers and lawn edge trimmers  
(IEC 60335-2-91:2002, modified)**

Appareils électrodomestiques  
et analogues -  
Sécurité  
Partie 2-91: Règles particulières pour les  
coupe-gazon et les coupe-bordures  
portatifs et à conducteur à pied  
(CEI 60335-2-91:2002, modifiée)

Sicherheit elektrischer Geräte für den  
Hausgebrauch und ähnliche Zwecke  
Teil 2-91: Besondere Anforderungen  
für handgeführte Rasentrimmer  
und Rasenkantenschneider  
(IEC 60335-2-91:2002, modifiziert)

[SIST EN 60335-2-91:2004](https://standards.iteh.ai/catalog/standards/sist/fe9ab505-0d7e-4ea4-842e-8292552b5556/sist-en-60335-2-91-2004)

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This European Standard was approved by CENELEC on 2003-02-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Lithuania, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

## CENELEC

European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**Central Secretariat: rue de Stassart 35, B - 1050 Brussels**

## Foreword

The text of the International Standard IEC 60335-2-91, prepared by SC 61F, Safety of hand-held motor-operated electric tools, of IEC TC 61, Safety of household and similar electric appliances, together with common modifications prepared by the Technical Committee CENELEC TC 61F, Safety of hand-held and transportable motor-operated electric tools, was submitted to the formal vote and was approved by CENELEC as EN 60335-2-91 on 2003-02-01.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2004-02-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2006-02-01

In this standard the common modifications to the International Standard are indicated by a vertical line in the left margin.

This standard has to be used in conjunction with EN 60335-1, Safety of household and similar electrical appliances, Part 1: General requirements. It was established on the basis of the 2002 edition of that standard.

This part 2 supplements or modifies the corresponding clauses of EN 60335-1, so as to convert it into the European Standard: Safety requirements for walk-behind and hand-held lawn trimmers and lawn edge trimmers.

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 of Part 1 is to be adapted accordingly.

This European Standard has been prepared under a mandate given to CEN and CENELEC by the European Commission and the European Free Trade Association and supports the essential health and safety requirements of the Machinery Directive.

Compliance with the clauses of EN 60335-1 together with this part 2 provides one means of conforming with the essential health and safety requirements of the Directive.

Other harmonised standards referred to in this European Standard are listed in Annex ZC of Part 1 and this part. The annex lists the valid edition of those documents at the time of issue of this EN. All references are however to be understood as references to the latest edition.

NOTE 1 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.;
- subclauses, notes and annexes that are additional to those in the IEC standard are prefixed with the letter Z.

NOTE 2 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.

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## 1 Scope

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

### 1 Scope

This clause of Part 1 is replaced by the following:

This standard applies to mains operated **walk-behind** and **hand-held lawn trimmers** and **lawn edge trimmers**, with **cutting element(s)** of non-metallic filament line or freely pivoting non-metallic cutter(s) with a kinetic energy of not more than ten (10) joules each, used by a standing operator primarily for cutting grass.

As far as is practicable, this standard deals with the common hazards presented by appliances that are encountered by all persons in and around the home. However, in general, it does not take into account

- the use of appliances by young children or infirm persons without supervision;
- playing with the appliance by young children.

This standard does not apply to scissors type or rigid blade lawn trimmers and lawn edge trimmers.

NOTE In this standard **hand-held** and **walk-behind lawn trimmers** and **lawn edge trimmers** are referred to collectively as appliances.

## 2 Normative references

This clause of Part 1 is applicable except as follows:

*Addition:*

[SIST EN 60335-2-91:2004](https://standards.iteh.ai/standards/sist/60335-2-91-2004)

EN 786, *Electrically powered walk-behind and hand-held lawn trimmers and lawn edge trimmers – Mechanical safety*

## 3 Definitions

This clause of Part 1 is applicable except as follows:

### 3.1.9 Replacement:

#### normal operation

the load necessary to obtain rated input while the appliance is operated at **rated voltage**

#### 3.101

##### hand-held appliance

appliance which is supported by hand, possibly assisted by wheel(s), skids or harness etc. and constructed such that it cannot maintain its operating position without being held by an operator

#### 3.102

##### walk-behind appliance

appliance which is ground supported, controlled by an operator walking behind and constructed such that it maintains its operating position without being held by an operator

#### 3.103

##### lawn trimmer

grass trimming machine where the **cutting means** operates in a plane approximately parallel to the ground

**3.104**

**lawn edge trimmer**

grass trimming machine where the **cutting means** operates in a plane approximately perpendicular to the ground

**3.105**

**cutting means**

mechanism used to provide the cutting action in which one or more **cutting elements**, cutting by impact, rotate about an axis normal to the cutting plane

**3.106**

**cutting element**

single non-metallic filament line or freely pivoting non-metallic cutter

**4 General requirement**

This clause of Part 1 is applicable.

**5 General conditions for 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:**

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Appliances shall be of **class II** or **class III**.

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

**6.2 Addition:**

**Walk-behind appliances** of **class II** or with **class II** parts shall be classified as IPX4.

**7 Marking and instructions**

This clause of Part 1 is applicable except as follows:

**7.3 Addition:**

**Lawn trimmers** and **lawn edge trimmers** shall meet all the relevant requirements of EN 786.

**Hand-held appliances** of **class II** or with **class II** parts (unless constructed according to IPX4 or better) shall also be marked with:

DO NOT EXPOSE TO MOISTURE

If a pictogram is used it shall be that shown in Annex BB. It shall be in contrasting colours to the base material. If it is embossed, stamped or cast colours are not required.

### 7.12 Replacement:

An instruction sheet shall be supplied with the appliance.

These instructions shall include

- a) all the relevant requirements of EN 786;
- b) a repeat of all the symbols used on the appliance and an explanation of their meaning;
- c) at least the sense of and in proper order the following safety instructions which are to be followed in the preparation for use, operation and maintenance of the appliance:
  - Read the instructions carefully,
  - Be familiar with the controls and proper use of the equipment;
  - Before use check the supply and extension cord for signs of damage or ageing,
  - If the cord becomes damaged during use, disconnect the cord from the supply immediately. DO NOT TOUCH THE CORD BEFORE DISCONNECTING THE SUPPLY,
  - Do not use the lawn trimmer (edge trimmer), if the cords are damaged or worn,
- d) the following warnings:
  - Warning. Cutting elements continue to rotate after the motor is switched off,
  - Keep extension cords away from cutting elements;
- e) instructions for the safe operation of the machine, including a recommendation that appliances should be supplied via a residual current device (RCD) with a tripping current of not more than 30 mA.

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### 8 Protection against accessibility to live parts

[SIST EN 60335-2-91:2004](#)

This clause of Part 1 is not applicable. <https://standards.iteh.ai/catalog/standards/sist/fe9ab505-0d7e-4ea4-842e-8292552b5556/sist-en-60335-2-91-2004>

### 9 Starting

This clause of Part 1 is not applicable.

### 10 Power input and current

This clause of Part 1 is applicable except as follows:

10.1 Not applicable.

### 11 Heating

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

11.4 Not applicable.

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.

### 16 Leakage current and electric strength

This clause of Part 1 is applicable except as follows:

16.2 Not applicable.

### 17 Overload protection of transformers and associated circuits

This clause of Part 1 is applicable.

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### 18 Endurance

18.Z101 Appliances 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 have worked loose as a result of heating, vibration, etc.

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

*Compliance is checked by the tests of 18.Z102.*

18.Z102 *The appliance is operated at **no-load** and at a voltage equal to 1,1 times **rated voltage** for a time of 15 h, reduced by the running time necessary for the tests of Clause 11 and Clause 13.*

*The appliance is then operated at a voltage equal to 0,9 times rated voltage for 15 h. The appliance shall be fitted with the maximum size/length of **cutting means** specified by the user instructions.*

*Appliances are operated continuously, or for a corresponding number of periods, each period being not less than 7 h.*

*During the test replacement of carbon brushes is allowed.*

18.Z103 *During the tests of 18.Z102 overload **protective devices** shall not operate.*

*After the tests of 18.Z102 the appliance shall withstand the tests of Clause 16. Connections, handles, guards, brush-caps and other fittings or components shall not have worked loose, and there shall be no deterioration impairing safety in normal use.*

### 19 Abnormal operation

This clause of Part 1 is applicable except as follows:

19.7 Not applicable.

## 20 Stability and mechanical hazards

This clause of Part 1 is applicable except as follows:

### 20.2 *Replacement:*

**Lawn trimmers** and **lawn edge trimmers** shall meet all the relevant requirements of EN 786.

## 21 Mechanical strength

This clause of Part 1 is applicable except as follows:

**21.Z101 Lawn trimmers** and **lawn edge trimmers** shall meet all the relevant requirements of EN 786.

## 22 Construction

This clause of Part 1 is applicable except as follows:

**22.Z101 Lawn trimmers** and **lawn edge trimmers** shall meet all the relevant requirements of EN 786.

## 23 Internal wiring

This clause of Part 1 is applicable.

## 24 Components

This clause of Part 1 is applicable except as follows:

### 24.1 *Addition:*

Switches shall be tested for at least 10 000 operations.

## 25 Supply connection and external flexible cords

This clause of Part 1 is applicable except as follows:

### 25.1 *Addition:*

Appliance inlets shall not allow the introduction of a connector complying with the standard sheets of EN 60320, except EN 60320-2-3.

### 25.7 *Replace the first paragraph by the following:*

**Supply cords** shall not be lighter than:

- if rubber insulated, ordinary tough rubber sheathed flexible cord (code designation H05 RR-F) or ordinary polychloroprene sheathed flexible cord (code designation H05 RN-F);
- if polyvinyl chloride insulated, ordinary polyvinyl sheathed flexible cord (code designation H05 VV-F).

## 26 Terminals for external conductors

This clause of Part 1 is applicable.

**27 Provision for earthing**

This clause of Part 1 is applicable.

**28 Screws and connections**

This clause of Part 1 is applicable.

**29 Creepage distances, clearances and distances through insulation**

This clause of Part 1 is applicable.

**30 Resistance to heat, fire and tracking**

This clause of Part 1 is applicable.

**31 Resistance to rusting**

This clause of Part 1 is applicable.

**32 Radiation, toxicity and similar hazards**

This clause of Part 1 is applicable. (standards.iteh.ai)

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## Annexes

The annexes of Part 1 are applicable except as follows:

### Annex B

#### Appliances powered by rechargeable batteries

This annex of Part 1 is not applicable.

### Annex D

#### Alternative requirements for protected motor

This annex of Part 1 is not applicable.

### Annex I

#### Motors having basic insulation that is inadequate for the rated voltage of the appliance

This annex of Part 1 is not applicable.

(Annex AA - deleted)

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**Annex BB**  
(normative)

#### Pictograms for lawn trimmers and lawn edge trimmers marking

Do not expose to moisture



**Annex ZC**  
(normative)

**Normative references to international publications  
with their corresponding European publications**

*Addition:*

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
–	–	Electrically powered walk-behind and hand-held lawn trimmers and lawn edge trimmers – Mechanical safety	EN 786	– <sup>1)</sup>

**Bibliography**

The bibliography of Part 1 is applicable.

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<sup>1)</sup> Undated reference.