
Varnost gospodinjskih in podobnih električnih aparatov - Posebne zahteve za ročno vodene baterijske vrtno kosilnice

Safety of household and similar electrical appliances - Particular requirements for pedestrian controlled battery powered electrical lawnmowers

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 50338:2002](https://standards.iteh.ai/catalog/standards/sist/cc5831ed-e58e-4a16-85c5-3c7bbc548a01/sist-en-50338-2002)

<https://standards.iteh.ai/catalog/standards/sist/cc5831ed-e58e-4a16-85c5-3c7bbc548a01/sist-en-50338-2002>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 50338:2002

<https://standards.iteh.ai/catalog/standards/sist/cc5831ed-e58e-4a16-85c5-3c7bbc548a01/sist-en-50338-2002>

EUROPEAN STANDARD

EN 50338

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2000

ICS 65.060.70

English version

**Safety of household and similar electrical appliances -
Particular requirements for pedestrian controlled
battery powered electrical lawnmowers**

Sécurité des appareils électro-
domestiques et analogues -
Règles particulières pour les
tondeuses à gazon alimentées par
batterie et à conducteur à pied

Sicherheit elektrischer Geräte für den
Hausgebrauch und ähnliche Zwecke -
Besondere Anforderungen für
handgeführte batteriebetriebene
Rasenmäher

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 50338:2002

<https://standards.iteh.ai/catalog/standards/sist/cc5831ed-e58e-4a16-85c5-fc6bc348a01/sist-en-50338-2002>
This European Standard was approved by CENELEC on 2000-01-01. 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, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, 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

This European Standard has been prepared by the Technical Committee CENELEC TC 61F, Hand-held and transportable motor-operated electric tools.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50338 on 2001-01-01.

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) 2001-05-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2003-01-01

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 1994 edition of that standard. EN 60335-1 is referred to hereafter as part 1.

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 pedestrian controlled battery powered electrical lawnmowers.

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.

Specific requirements for the reduction for the risk arising from noise and vibration through the design of the tool are not given as this reflects the current state of the art. As with any standard technical progress will be kept under review so that any developments can be taken into account.

Warning: Other requirements and other EC Directives can be applicable to the products falling within the scope of this standard.

NOTE 1 — In this standard the following print types are used:

- Requirements proper;
- *Test specifications*
- Explanatory matter.

Words in **bold** in the text are defined in clause 2. When a definition of part 1 concerns an adjective, in this part the adjective and the associated noun are also in bold.

NOTE 2 — Subclauses and figures 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.

1 Scope

This clause of part 1 is applicable except as follows:

1.1 Replacement:

This standard deals with the safety of **pedestrian controlled** battery powered electrical cylinder or rotary **lawnmowers** designed primarily for use at and around the home or for similar purposes, the **rated voltage** of the battery being not more than 42 V d.c.

This standard is not applicable to **lawn trimmers, lawn edge trimmers, lawn edgers, flail mowers, scrub cutters, sickle-bar mowers, or agricultural mowers.**

This standard is not applicable to **rotary mowers** for which the **cutting means** is a generally circular central drive unit on which is mounted, either one or more non-metallic filaments or one or more non-metallic, pivotally mounted cutting elements. These cutting elements rely on centrifugal force to achieve cutting, with the kinetic energy of a single cutting element not exceeding 10 joules.

This standard does not in general take into account:

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

Battery chargers, including those incorporated into the appliance, are covered by EN 60335-2-29.

2 Definitions

This clause of part 1 is applicable except as follows:

2.2.101 **blade**: Term used in warnings and instructions to denote **cutting means**. (See 2.104.)

2.2.102 **braking system**: A combination of one or more brakes and related means of operation and **control**.

2.2.103 **control**: A means or device which will control the operation of the appliance or any specific operating function thereof.

2.2.104 **cutting means**: The mechanism used to provide the cutting action.

2.2.105 **cutting means enclosure (housing)**: The part or assembly which provides the protective means around the **cutting means**.

2.2.106 **cutting means tip circle**: The path described by the outermost point of the **cutting means** as it rotates about its shaft axis.

2.2.107 **cutting positions**: Any height setting of the **cutting means** designated by the manufacturer for cutting grass.

2.2.108 **cutting width**: The width of cut measured across the **cutting means** at right angles to the direction of travel.

2.2.109 **cylinder mower**: A **lawnmower** with one or more **cutting means** rotating about a horizontal axis to provide a shearing action with a fixed cutter bar or knife.

2.2.110 **discharge chute**: An extension of the **cutting means enclosure** from the **discharge opening**, generally used to control the discharge of material from the **cutting means**.

- 2.2.111 **discharge opening**: A gap or opening in the **cutting means enclosure** through which grass may be discharged.
- 2.2.112 **flail mower**: A grass-cutting appliance with a multiplicity of free-swinging cutting elements that rotate about an axis parallel to the cutting plane and cut by impact.
- 2.2.113 **grass catcher**: A part or combination of parts which provides a means for collecting grass clippings or debris.
- 2.2.114 **grass catcher adaptor**: A device to modify a **lawnmower** from a non-collecting to a collecting type.
- 2.2.115 **guard** : A part of the appliance or a component incorporated to provide protection for the operator and/or bystander.
- 2.2.116 **handle**: All parts likely to be hand-held for guiding the appliance in **intended use**.
- 2.2.117 **hit**: The test projectile passing completely through all layers of the target panel material.
- 2.2.118 **hover mower**: A **lawnmower** which uses a cushion of air instead of wheels as a ground support.
- 2.2.119 **intended use**: Any use of the appliance which is reasonably foreseeable, as described in the user instructions, and which is consistent with such activities as cutting grass, starting, stopping, or connecting to (or disconnecting from) a **power source**.
- 2.2.120 **lawn edger**: A powered appliance suitable for cutting lawn and soil, usually in a vertical plane.
- 2.2.121 **lawn edge trimmer**: A powered grass cutting appliance for trimming lawn edges usually in a vertical plane.
- 2.2.122 **lawnmower (mower)**: A grass-cutting appliance where the **cutting means** operates in a plane approximately parallel to the ground and which uses the ground to determine the height of cut by means of wheels, air cushion or skids, etc., and which utilizes an electric motor for a **power source**.
- 2.2.123 **lawn trimmer**: A powered grass-cutting appliance where the operator determines the plane of operation of the **cutting means** and the height of cut, possibly assisted by a wheel or skid, etc.
- 2.2.124 **maximum operating motor speed**: The highest motor speed obtainable when adjusted in accordance with the manufacturer's specifications and/or instructions, with the **cutting means** engaged.
- 2.2.125 **mulching mower**: A **rotary mower** without **discharge openings** in the **mower** housing.
- 2.2.126 **no-load**: The minimum load attainable at rated voltage. (For **cylinder mowers** no cylinder to fixed **blade** contact.)
- 2.2.127 **operator control**: Any **control** requiring operator actuation to perform specific functions.
- 2.2.128 **operator presence control**: A **control** designed so that it will automatically interrupt power to a drive when the operator's actuating force is removed.
- 2.2.129 **operator zone**: The operator zone for persons operating a **lawnmower** is presented in figure 101.
- 2.2.130 **parking brake**: A device incorporated in the appliance which, when operated, prevents the appliance from moving from a stationary position and remains applied without the operator present.
- 2.2.131 **pedestrian controlled mower**: A grass-cutting appliance, either pushed or self-propelled, normally controlled by the operator walking behind the unit.

- 2.2.132 **power source**: A motor which provides mechanical energy for linear or rotational movement.
- 2.2.133 **rotary mower**: A **lawnmower** in which the **cutting means**, cutting by impact, rotate about an axis (axes) normal to the cutting plane.
- 2.2.134 **service brake**: The designated primary means for decelerating and stopping a machine from its ground travel speed.
- 2.2.135 **sickle bar mower**: A **lawnmower** which uses a **power source** to reciprocate a knife or knives to provide a shearing action with a stationary cutter bar or movable knife.
- 2.2.136 **stopping time**: The time elapsed between the instant when the actuator is released and the instant at which the appliance or component comes to a stop.
- 2.2.137 **throw line (cylinder mowers)**: The steepest line in a vertical plane, tangential to the periphery of the cutting cylinder in the direction of rotation, which does not intersect a **guard** or portion of the appliance. (See figure 111.)
- 2.2.138 **thrown object hazard**: The potential for injury caused by object(s) propelled by the moving **cutting means**.
- 2.2.139 **traction drive**: The means (system) used to transmit power from the **power source** to the ground drive means.
- 2.2.140 **disabling device**: A part which is removable from the **lawnmower**, such as for example a key, when prevents operation of the **lawnmower** when it is removed.

3 General requirement

[SIST EN 50338:2002](https://standards.iteh.ai/catalog/standards/sist/cc5831ed-e58e-4a16-85c5-3c7bbc548a01/sist-en-50338-2002)

This clause of part 1 is applicable. <https://standards.iteh.ai/catalog/standards/sist/cc5831ed-e58e-4a16-85c5-3c7bbc548a01/sist-en-50338-2002>

4 General conditions for the tests

This clause of part 1 is applicable except as follows:

4.5 Addition:

*During the tests the **cutting means** are adjusted and lubricated in accordance with the manufacturer's instructions specific to the test.*

NOTE — For example, **cylinder mower cutting means** may not be able to run for extended periods at normal adjustment because of lack of lubrication etc. normally provided by the grass.

4.6 Addition:

Electronic speed **control** devices are set for the highest speed.

4.8.1 Replacement:

Unless otherwise specified, a fully charged battery shall be used for each test. Where for consecutive tests the same battery is specified there shall be a minimum of 1 minute rest time between tests.

5 Void

6 Classification

This clause of part 1 is applicable except as follows:

6.1 Replacement:

Appliances shall be of one of the following classes with respect to protection against electric shock:

Appliances incorporating battery chargers shall be **class II** other appliances shall be **class III**.

Compliance is checked by inspection and by the relevant tests.

6.2 Addition:

Class II appliances shall be at least IPX4.

7 Marking and instructions

This clause of part 1 is applicable except as follows:

7.1 Replacement:

7.1 Appliances shall be marked with the

- **rated voltage** or **rated voltage range** in volts;
- symbol for nature of supply, unless the **rated frequency** is marked;
- **rated power input** in watts or kilowatts or **rated current** in amperes;
- name, trade mark or identification mark of the manufacturer or responsible vendor;
- model or type reference;
- symbol for **class II construction**, for **class II appliances** only;
- IP number according to degree of protection against ingress of water, other than IPX0;
- manufacturer's address or country of origin;
- any mandatory mark showing compliance with legislation by reference to this standard;
- year of manufacture;
- mass in kilograms (if over 25 kg).

Compliance is checked by inspection.

NOTE 1 — The first numeral of the IP number need not be marked on the appliance.

NOTE 2 — Additional markings are allowed provided they do not give rise to misunderstanding.

NOTE 3 — If components are marked separately, the marking of the appliance and that of the components is to be such that there can be no doubt with regard to the marking of the appliance itself.

Marking giving cautionary information shall be located as close as practical to the relevant hazard. Such marking shall be in one of the official languages of the country in which the machine is to be sold or appropriate pictograms/symbols in contrasting colours shall be used. If the marking is cast, embossed or stamped, colours are not required.

A warning shall be located in a position easily visible to the operator indicating (in words or pictograms/symbols):

WARNING - KEEP BYSTANDERS AWAY. READ USER INSTRUCTIONS BEFORE OPERATING THIS MACHINE.

If pictograms are used they shall be as shown in Annex DD for the text indicated.

For **rotary mowers**:

- the **cutting means** shall be marked for identification;
- if a **grass catcher adaptor** is used, instructions shall be affixed to the **lawnmower** near the **discharge opening** and to the **grass catcher adaptor** stating that the **lawnmower** shall not be operated without either the entire **grass catcher** or the **guard** in place.

7.6 *Addition:*

NOTE — Information on operator symbols may be found in ISO 3767-1 and ISO 3767-3, and ISO 3864 for colours.

7.8 *Addition:*

If a cell or battery is intended to be replaced by the user and it is possible for it to be put in a reverse polarity then the correct location and polarity shall be marked at its intended location.

7.9 *Modification:*

Replace the first paragraph by:

Operator controls as described in 20.101.1, other than those whose purpose is obvious, shall have the function, direction and/or method of operation clearly identified by a durable label or mark.

7.12 *Replacement:*

An instruction sheet shall be supplied with the appliance.

The instructions shall include:

- [SIST EN 50338:2002](https://standards.iteh.ai/catalog/standards/sist/cc5831ed-e58e-4a16-85c5-3c7bbc548a01/sist-en-50338-2002)
<https://standards.iteh.ai/catalog/standards/sist/cc5831ed-e58e-4a16-85c5-3c7bbc548a01/sist-en-50338-2002>
- 1) Explanation of any pictograms that are used on the machine.
 - 2) Instructions for the proper assembly of the appliance for use, if the appliance is not supplied in a completely assembled form.
 - 3) Instructions for proper adjustment of the appliance, including a warning of the danger of rotating **blade(s)**; for example, "Caution - Do not touch rotating blade".
 - 4) Instructions for the safe operation of the appliance, including warnings against leakage of electrolyte under extreme conditions and information on action to be taken (e.g. flush with water/neutralising agent, seek medical help if it comes into contact with the eyes, etc.)
 - 5) Instructions on the operation of all **controls**.
 - 6) Details of the battery charger to be used and advice on the safe disposal of batteries at the end of their life.
 - 7) Instructions for fitting and use of attachments, if any.

The instructions shall also include the substance of the following, where appropriate:

a) Training

- Read the instructions carefully. Be familiar with the controls and the proper use of the appliance.
- Never allow children or people unfamiliar with these instructions to use the appliance. Local regulations may restrict the age of the operator.
- Never mow while people, especially children, or pets are nearby.
- The operator or user is responsible for accidents or hazards occurring to other people or their property.

b) Preparation

- While mowing, always wear substantial footwear and long trousers.
- Do not operate the appliance when barefoot or wearing open sandals. always wear substantial footwear and long trousers.
- Thoroughly inspect the area where the appliance is to be used and remove all stones, sticks, wires, bones, and other foreign objects.
- Before using, always visually inspect to see that the blades, blade bolts and cutter assembly are not worn or damaged. Replace worn or damaged blades and bolts in sets to preserve balance.
- On multi-bladed appliances, take care as rotating one blade can cause other blades to rotate.

c) Operation

- Mow only in daylight or in good artificial light.
- Avoid operating the appliance in wet grass, where feasible.
- Always be sure of your footing on slopes.
- Walk, never run.
- For wheeled rotary mowers, mow across the face of slopes, never up and down.
- Exercise extreme caution when changing direction on slopes.
- Do not mow excessively steep slopes.
- Use extreme caution when reversing or pulling the appliance towards you.
- Stop the blade(s) if the appliance has to be tilted for transportation when crossing surfaces other than grass, and when transporting the appliance to and from the area to be mowed.
- Never operate the appliance with defective guards, or without safety devices, for example deflectors and/or grass catchers, in place.
- Switch on the motor according to instructions and with feet well away from the blade(s).
- Do not tilt appliance when switching on the motor, except if the appliance has to be tilted for starting. In this case, do not tilt it more than absolutely necessary and lift only the part which is away from the operator. Always ensure that both hands are in the operating position before returning the appliance to the ground.
- Do not put hands or feet near or under rotating parts. Keep clear of the discharge opening at all times.
- Never pick up or carry an appliance while the motor is running.
- Remove the disabling device from the machine:
 - whenever you leave the machine;
 - before clearing a blockage;
 - before checking, cleaning or working on the appliance;
 - after striking a foreign object. Inspect the appliance for damage and make repairs as necessary;
 - if the appliance starts to vibrate abnormally (check immediately).

d) Maintenance and storage

- Keep all nuts, bolts, and screws tight to be sure the appliance is in safe working condition.
- Check the grass catcher frequently for wear or deterioration.
- Replace worn or damaged parts for safety.
- For cylinder mowers - be careful during adjustment of the appliance to prevent entrapment of the fingers between moving blades and fixed parts of the appliance.
- For rotary mowers - ensure that only replacement cutting means of the right type are used.
- Ensure that batteries are charged using the correct charger recommended by the manufacturer. Incorrect use may result in electric shock, overheating or leakage of corrosive liquid from the battery.

8 Protection against access to live parts

This clause of part 1 is applicable except as follows:

8.2 *Addition:*

For **class II rotary mowers** access to the surface of **basic insulation** or metal parts separated from **live parts** by **basic insulation** shall be permitted when the **cutting means** is removed if a **tool** is required for its removal.

iTeh STANDARD PREVIEW

(standards.iteh.ai)

[SIST EN 50338:2002](https://standards.iteh.ai/catalog/standards/sist/cc5831ed-e58e-4a16-85c5-760054a01/sist-en-50338-2002)

<https://standards.iteh.ai/catalog/standards/sist/cc5831ed-e58e-4a16-85c5-760054a01/sist-en-50338-2002>

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 not applicable.

12 Void

13 Leakage current and electric strength at operating temperature

This clause of part 1 is applicable for **class II** appliances.

14 Void

15 Moisture resistance

This clause of part 1 is applicable for **class II** appliances except as follows:

15.1.2 Addition:

Appliances fitted with an appliance inlet shall be tested without the appropriate mating connector in place unless the appliance is inoperable without the mating connector in place.

Air filters are not removed.

16 Leakage current and electric strength

This clause of part 1 is applicable for **class II** appliances.

17 Overload protection of transformers and associated circuits

This clause of part 1 is applicable.

18 Endurance

This clause of part 1 is not applicable.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

19 Abnormal operation

This clause of part 1 is applicable except as follows:

19.1 Addition to paragraph 1:

This includes leakage of electrolyte from the battery.

19.7 Addition:

This test is not made on appliances with flexible or freely pivoting **cutting means** mounted on a generally circular drive unit.

Modification:

During the test the temperature of the windings is not measured but the appliance shall not emit flames, molten metal or liquids.

19.9 Not applicable.

19.10 Not applicable.

20 Stability and mechanical hazards

This clause of part 1 is applicable except as follows:

20.2 Replacement:

To prevent unexpected operation which may result in a hazard, only manually reset cut-outs and those which require the operating **control** to be released are allowed.

All power driven components except the **cutting means** and the ground-contacting parts of power propelled **mowers** shall be guarded to prevent contact with these parts during normal operation. Any apertures or safety distances shall comply with 4.5.2 and 4.5.3 of EN 294:1992.

Rotating covers or discs shall have a continuous unbroken or smooth surface.

Where a **guard** is designed to be opened or removed and which exposes a hazard, a safety sign warning of the hazard shall be located on the **guard** or adjacent to the **guard**.

All **guards** shall be permanently attached to the appliance and shall not be detachable without the use of **tools**. The opening of **guards**, except for the following shall require the use of a **tool**:

- a) the opening or removal of a **guard** of interlocked **guards** which disable the protected moving parts;
- b) the opening of hinged, self-closing **guards** for **discharge chutes**.

Compliance is checked by inspection and measurement.

20.101 **Controls**

20.101.1 *General*

The **controls** shall accommodate the 5th to 95th percentile adult operator as specified in ISO 3411.

The following are not **operator controls**:

- height of cut setting;
- fixed **blade** (on-cut) setting or adjustment on **cylinder mowers**;
- **grass catcher discharge arrangements**;

The location and range of movement of **operator controls** shall be convenient to the operator and shall remain within the anthropometric dimensions given in figure 101. The operating range of less frequently used **operator controls**, may be extended by allowing the operator's trunk, when standing with both feet on the ground, to articulate within the confines of the **operator zone**, (e.g. lean forward until contacting the **handle** in any of the operating positions).

20.101.2 *Operator presence control*

Appliances shall be fitted with a device on the **control handle** which will automatically stop **cutting means** rotation when the operator's hands are removed from the **handle**. This may be accomplished either by stopping the drive motor or by an intermediate **cutting means** clutch/brake mechanism. For starting **cutting means** rotation the **control** must require two separate and dissimilar actions. If these actions are to be carried out by using the same hand then the actions must be totally distinct thus to prevent accidental "switch on".

For **hover mowers** for which there is no instruction to tilt when starting, the switch-on of the **blade** shall not require either hand to cross the centre line of the **operator zone**.

20.101.3 *Traction drive*

For appliances with **traction drive**:

The **control** for **traction drive** shall automatically stop or disengage the **traction drive** when the operator leaves the normal operating position.

The reverse function of the **traction drive control** shall require continuous activation in the direction of travel to drive.

It shall be possible to engage or disengage the **traction drive** when the **cutting means** is operating.