

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety –
Part 4-3: Particular requirements for pedestrian controlled walk-behind lawnmowers**

[IEC 62841-4-3:2020](#)

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Outils électroportatifs à moteur, outils portables et machines pour jardins et pelouses – Sécurité –

Partie 4-3: Exigences particulières pour tondeuses à gazon à conducteur à pied



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Part 4-3: Particular requirements for pedestrian controlled walk-behind lawnmowers**

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Partie 4-3: Exigences particulières pour tondeuses à gazon à conducteur à pied

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CONTENTS

FOREWORD	5
1 Scope	7
2 Normative references	8
3 Terms and definitions	9
4 General requirements	11
5 General conditions for the tests	11
6 Radiation, toxicity and similar hazards	11
7 Classification	12
8 Marking and instructions	12
9 Protection against access to live parts	16
10 Starting	16
11 Input and current	16
12 Heating	16
13 Resistance to heat and fire	17
14 Moisture resistance	17
15 Resistance to rusting	18
16 Overload protection of transformers and associated circuits	18
17 Endurance	18
18 Abnormal operation	19
19 Mechanical hazards	20
20 Mechanical strength	39
21 Construction	41
22 Internal wiring	46
23 Components	46
24 Supply connection and external flexible cords	48
25 Terminals for external conductors	50
26 Provision for earthing	50
27 Screws and connections	50
28 Creepage distances, clearances and distances through insulation	50
Annexes	55
Annex I (informative) Measurement of noise and vibration emissions	55
Annex K (normative) Battery tools and battery packs	64
Annex L (normative) Battery tools and battery packs provided with mains connection or non-isolated sources	80
Annex AA (normative) Safety signs	86
Annex BB (normative) Test enclosure	92
Annex CC (normative) Rotary lawnmower foot protection test	101
Annex DD (normative) Lawnmower cutting means stopping time test	110
Annex EE (informative) Example of a material and construction for fulfilling the requirements for an artificial surface	112
Bibliography	114

Figure 101 – Operator control zones	24
Figure 102 – Handle distance and rear cutting means enclosure for rotary lawnmowers	27
Figure 103 – Example of design for rotary lawnmower front opening	28
Figure 104 – Examples of front opening allowance for rotary lawnmowers	29
Figure 105 – Obstruction test	35
Figure 106 – Guarding of cylinder lawnmower cutting means, general	37
Figure 107 – Guarding of cylinder lawnmower cutting means, side coverage	37
Figure 108 – Guarding of cylinder lawnmower cutting means, free and rear discharge	38
Figure 109 – Guarding of cylinder lawnmower cutting means, front discharge	38
Figure 110 – Cylinder lawnmower throw line and handle distance	39
Figure 111 – Impact test fixture for handle insulation	42
Figure 112 – Lawnmower cutting means measurement	46
Figure 113 – Test assembly for accessibility of attachment plug blades	49
Figure I.101 – Microphone positions on the hemisphere (see Table I.101)	56
Figure I.102 – Examples of positions of transducers for lawnmowers	62
Figure K.301 – Examples of separable battery pack connection points and direction of applied force	74
Figure AA.1 – Safety signs illustrating – "WARNING – Beware of thrown objects – keep bystanders away"	86
Figure AA.2 – Safety signs illustrating – "WARNING – Remove plug from mains before maintenance or if cord is damaged"	87
Figure AA.3 – Safety sign illustrating – "WARNING – Keep the supply cord away from the blades"	87
Figure AA.4 – Safety signs illustrating – "WARNING – Keep hands and feet away from the blades"	88
Figure AA.5 – Safety signs illustrating – "WARNING – Disconnect battery before maintenance"	89
Figure AA.6 – Safety signs illustrating – "WARNING – Remove the disabling device before maintenance"	90
Figure AA.7 – Safety signs illustrating – "WARNING – Activate the disabling device before maintenance"	91
Figure AA.8 – Safety sign illustrating – "DANGER – Keep hands and feet away"	91
Figure BB.1 – Test enclosure, construction detail	92
Figure BB.2 – Base detail	93
Figure BB.3 – Example of base, nail plan	93
Figure BB.4 – Test enclosure, general view	95
Figure BB.5 – Test enclosure, single spindle rotary lawnmower	96
Figure BB.6 – Test enclosure, multiple spindle rotary lawnmower	97
Figure BB.7 – Fixture for fibreboard penetration test	99
Figure CC.1 – Foot probe	102
Figure CC.2 – Areas to be probed for rotary lawnmowers	104
Figure CC.3 – Area to be probed for rotary lawnmowers with movable offset handles	105
Figure CC.4 – Area to be probed for air-cushion lawnmowers with single cutting means	106
Figure CC.5 – Area to be probed for air-cushion lawnmowers with multiple cutting means	107
Figure CC.6 – Area to be probed for rotary lawnmowers with single cutting means	108

Figure CC.7 – Area to be probed for rotary lawnmowers with multiple cutting means	109
Figure EE.1 – Sketch of the measurement surface covered with an artificial surface	113
Table 4 – Required performance levels	20
Table 101 – Cutting means stopping time	32
Table 102 – Permissible hits from thrown object test.....	34
Table 9 – Pull and torque value	50
Table 12 – Minimum creepage distances and clearances	52
Table I.101 – Co-ordinates of microphone positions.....	58
Table I.102 – Values of the constant a	58
Table I.103 – Absorption coefficients	59
Table 4 – Required performance levels	69
Table 301 – Pull and torque value.....	76
Table K.1 – Minimum creepage distances and clearances between parts of different potential.....	78
Table K.2 – Minimum total sum of creepage distances and clearances to accessible surfaces.....	79
Table 4 – Required performance levels	82

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[IEC 62841-4-3:2020](https://standards.iteh.ai/catalog/standards/sist/db71e3de-d25e-419d-8c53-3ea45fe55e44/iec-62841-4-3-2020)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE TOOLS AND LAWN AND GARDEN MACHINERY – SAFETY –**Part 4-3: Particular requirements for pedestrian controlled walk-behind lawnmowers**

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International Standard IEC 62841-4-3 has been prepared by IEC technical committee 116: Safety of motor-operated electric tools.

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

FDIS	Report on voting
116/467/FDIS	116/478/RVD

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

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

This Part 4-3 is to be used in conjunction with the first edition of IEC 62841-1:2014.

This Part 4-3 supplements or modifies the corresponding clauses in IEC 62841-1, so as to convert it into the IEC Standard: Particular requirements for pedestrian controlled walk-behind lawnmowers.

Where a particular subclause of Part 1 is not mentioned in this Part 4-3, that subclause applies as far as reasonable. Where this document 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 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 4-3 are numbered starting from 301.

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.

IEC 62841-4-3:2020

The committee has decided that the contents of this publication will remain unchanged until the stability 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.

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.

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

Part 4-3: Particular requirements for pedestrian controlled walk-behind lawnmowers

1 Scope

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

Addition:

This document applies to the design of pedestrian controlled walk-behind

- **cylinder lawnmowers;**

and

- **rotary lawnmowers**

equipped with

- metallic **cutting means**; and/or
- rigid non-metallic **cutting means**; and/or
- non-metallic **cutting means** with one or more cutting elements pivotally mounted on a generally circular lap drive unit, where these cutting elements rely on centrifugal force to achieve cutting, and have a kinetic energy for each single cutting element of greater than 10 J.

NOTE 101 Machines that have non-metallic **cutting means** and a kinetic energy for each single cutting element of less than or equal to 10 J are considered to be lawn trimmers.

This document does not apply to

- robotic lawnmowers;
- remote-controlled lawnmowers;
- flail mowers or flail-type attachments;
- scissors type lawnmowers;
- grassland mowers;
- sickle bar mowers;
- towed/semi-mounted grass-cutting machines;
- scrub-clearing machines;
- lawn trimmers and lawn edge trimmers;
- lawn edgers;
- grass trimmers;
- brush cutters;
- brush saws;
- agricultural mowers;
- trailing seat/sulky units;
- ride-on machines;

- non-powered lawnmowers;
- combustion engine powered lawnmowers;
- hybrid and fuel cell powered machines and associated charging systems; and
- garden tractors or their attachments.

NOTE 102 Robotic lawnmowers are covered by IEC 60335-2-107, and will be covered by a future part of IEC 62841.

NOTE 103 Lawn trimmers and lawn edge trimmers are covered by IEC 60335-2-91.

NOTE 104 Lawn trimmers, lawn edge trimmers, grass trimmers, brush cutters and brush saws will be covered by a future part of IEC 62841.

NOTE 105 Lawn edgers will be covered by a future part of IEC 62841.

2 Normative references

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

Addition:

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*

IEC 61058-2-6:2018, *Switches for appliances – Part 2-6: Particular requirements for switches used in electric motor-operated hand-held tools, transportable tools and lawn and garden machinery*

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IEC 61672-1, *Electroacoustics – Sound level meters – Part 1: Specifications*

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

ISO 5395-1:2013, *Garden equipment – Safety requirements for combustion-engine-powered lawnmowers – Part 1: Terminology and common tests*
ISO 5395-1:2013/AMD1:2017

ISO 5395-2:2013/AMD1:2016, *Garden equipment – Safety requirements for combustion-engine-powered lawnmowers – Part 2: Pedestrian-controlled lawnmowers*
ISO 5395-2:2013/AMD1:2016/AMD2:2017

ISO 13857:2019, *Safety of machinery – Safety distances to prevent hazard zones being reached by upper and lower limbs*

ANSI B71.1:2017, *Consumer turf care equipment – Pedestrian-controlled mowers and ride-on mowers – Safety specifications*

EN 12096, *Mechanical Vibration – Declaration and Verification of Vibration Emission Values*

Replacement:

IEC 61058-1:2016, *Switches for appliances – Part 1: General requirements*

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*

ISO 11201:2010, *Acoustics – Noise emitted by machinery and equipment – Determination of emission sound pressure levels at a work station and at other specified positions in an essentially free field over a reflecting plane with negligible environmental corrections*

3 Terms and definitions

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

3.101

cutter bar

stationary device used on a **cylinder lawnmower** to provide a shearing action in combination with the **cutting means**

3.102

cutting height

shortest vertical distance between the cutting edge of the **cutting means** and the supporting surface of a **lawnmower**

3.103

cutting means

rotating mechanism or rotating part of the **lawnmower** that is designed to perform the cutting action

Note 101 to entry: **Cutting means** are also known as blades, cutting cylinders or reels.

3.104

cutting means assembly

cutting means together with the **cutting means enclosure**, including **cutting means** shaft(s)

3.105

cutting means control

device to engage and disengage the **cutting means** from its drive, in order to start and stop the **cutting means** motion

3.106

cutting means enclosure

part or assembly, including the **discharge chute** and **guard** for **grass catcher** opening, designed to prevent unintended contact with the **cutting means**

3.107

cutting means tip circle

path described by the outermost point of the **rotary lawnmower cutting means** cutting edge as it rotates about its shaft axis

3.108

cutting position

any height setting of the **cutting means** designated by the manufacturer for cutting grass

3.109

cutting width

total distance across the **cutting means** path at 90° to the direction of travel

3.110

discharge chute

portion of the **cutting means enclosure**, extending outward from the **discharge opening**, designed to control the ejection of material from the **cutting means**

3.111

discharge opening

opening in the **cutting means enclosure** through which material such as grass clippings can be discharged

3.112

grass catcher

part or combination of parts, intended to be used with the **lawnmower**, which provides a means for collecting material such as grass clippings

3.113

lawnmower

pedestrian controlled walk-behind lawn cutting machine, where the **cutting means** cuts approximately parallel to the ground and which uses the ground to determine the **cutting height** by means of wheels, air-cushion or skids, etc.

3.113.1

air-cushion lawnmower

rotary lawnmower which hovers using pressurized air as its ground support

3.113.2

cylinder lawnmower

lawnmower with one or more **cutting means** rotating about a horizontal axis to provide a shearing action with a **cutter bar**

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Note 101 to entry: **Cylinder lawnmowers** are also known as reel lawnmowers.

3.113.3

rotary lawnmower

lawnmower in which one or more **cutting means**, cutting by impact, rotate about an axis perpendicular to the cutting plane

3.114

maximum speed

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

3.115

mulching

mode of operation of a **rotary lawnmower**, having a fixed or optional configuration, which returns clippings to the lawn without **discharge openings**

Note 101 to entry: Some **lawnmowers** are converted to a **mulching** type by the use of **mulching** parts or plugs.

3.116

operator control

device requiring operator actuation to perform specific functions during **normal operation**

3.117

operator presence control

device that deactivates rotation of the **cutting means** when the operator's hand(s) is removed from the control

Note 101 to entry: The device typically consists of a combination of a mechanical actuator and other mechanical and electrical components (e.g. tactile switch, relays, load switches).

3.118**parking brake**

device to prevent a stationary machine from moving

3.119**service brake**

device for decelerating and stopping a machine from its ground travel speed

3.120**throw line**

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 other components of a **cylinder lawnmower**

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:

5.4 Addition:

Handle positions that are used for storage purposes are not included in this requirement.

5.7.2 Replacement:

<https://standards.iteh.ai/catalog/standards/sist/db71e3de-d25e-419d-8c53-3aa45fe55e44/iec-62841-4-3-2020>

*Machines are tested at **rated voltage**. Machines having more than one **rated voltage** or having a **rated voltage range** are tested at the highest voltage.*

5.17 Addition:

*The mass of the machine includes the **cutting means**, **grass catcher** (empty) (if any), **grass catcher adapter** (if any), **mulching parts or plug** (if any), **cutting means enclosure cover** (if any) in the heaviest configuration in accordance with 8.14.2.*

5.101 *During the tests, the **cutting means** may be adjusted and lubricated as needed to permit operation for extended periods.*

NOTE 101 For example, it is possible that a **cylinder lawnmower cutting means** is not able to run for extended periods at normal adjustment because of lack of lubrication, etc. normally provided by the grass.

5.102 *For tests that are performed at **maximum speed** and no-load, the manufacturer may need to provide special hardware and/or software in order to achieve **maximum speed** at no-load.*

5.103 *The tests are performed using all **cutting means** in accordance with 8.14.2 a) 103).*

6 Radiation, toxicity and similar hazards

This clause of Part 1 is applicable.

7 Classification

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

7.1 Replacement:

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

class II tool (machine), **class III tool** (machine).

Compliance is checked by inspection and by the relevant tests.

7.2 Addition:

Class II tools (machines) shall be at least IPX4. **Class III tools** (machines) shall be at least IPX1.

8 Marking and instructions

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

8.1.101 Machines with more than one motor (i.e. separate motors for the **cutting means** and traction drive) shall be marked with the **rated input**, in watts or **rated current**, in amperes, for each motor. These markings may be located on each motor.

Compliance is checked by inspection. [IEC 62841-4-3:2020
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8.2 Addition:

Lawnmowers shall be marked with the following safety warnings:

- “⚠️ **WARNING** – Beware of thrown objects – keep bystanders away” or one of the safety signs specified in Figure AA.1;

For mains supplied machines:

- “⚠️ **WARNING** – Remove plug from mains before maintenance or if cord is damaged” or one of the safety signs specified in Figure AA.2;
- “⚠️ **WARNING** – Keep the supply cord away from the blades” or the safety sign specified in Figure AA.3.

Rotary lawnmowers shall be marked with the following safety warning:

- “⚠️ **WARNING** – Keep hands and feet away from the blades” or one of the safety signs specified in Figure AA.4.

NOTE 101 In the United States of America, the following additional requirements apply.

For **lawnmowers** in accordance with 16 CFR 1205:

- Warning label for **cylinder lawnmowers** and **rotary lawnmowers**.
- (a) General. Walk-behind **cylinder lawnmowers** and **rotary lawnmowers** shall be labeled on the blade (**cutting means**) housing or, in the absence of a blade (**cutting means**) housing, on other blade (**cutting means**) shielding or on an adjacent supporting structure or assembly, with the warning label shown in Figure AA.8. The label shall be at least 82,5 mm high and 102 mm wide, and the lettering and symbol shall retain the same size relation to each other and to the label as shown in Figure AA.8.

- (b) **Rotary lawnmowers.** Walk-behind **rotary lawnmowers** shall have one label as shown in Figure AA.8, on the blade (**cutting means**) housing. The label shall be located as close as possible to any **discharge opening**, or, if there is no **discharge opening**, in a position that is conspicuous to an operator in the normal operating position.
- (c) **Cylinder lawnmowers.** Walk-behind **cylinder lawnmowers** shall have one label as shown in Figure AA.8, located as close to the centre of the **cutting width** of the blade (**cutting means**) as possible. However, in the absence of a suitable mounting surface near the centre of the **cutting width**, the label shall be placed on the nearest suitable mounting surface to the centre of the **cutting width**.

8.3 Addition:

For **rotary lawnmowers**, the **cutting means**, where replaceable during **user maintenance**, shall be marked to identify the part number(s) and the manufacturer, importer or supplier. This marking is not required to be clearly discernible from the outside of the machine.

NOTE 101 In the United States of America, the following additional requirements apply.

For **rotary lawnmowers** in accordance with 16 CFR 1205:

Rotary lawnmowers shall be marked with “Meets CPSC blade safety requirements” on the product.

Replacement of the sixth dash:

- “> 25 kg” if the mass of the machine is over 25 kg. For this requirement, the mass of the machine includes the mass of a **supply cord** with a length not less than 10 m, if any, in addition to the items specified in 5.17.

NOTE 102 In Europe, the following requirement applies:

Replacement of the sixth dash:

- the mass of the machine in kg. For this requirement, the mass of the machine includes the mass of a **supply cord** with a length not less than 10 m, if any, in addition to the items specified in 5.17.

8.9 Replacement: <https://standards.iteh.ai/catalog/standards/sist/db71e3de-d25e-419d-8c53-3ea45fe55e44/iec-62841-4-3-2020>

Unless it is obviously unnecessary, switches and controls (e.g. a **cutting means** brake/clutch) which may give rise to a hazard when operated shall be marked or so placed as to indicate clearly which part of the machine they control.

Compliance is checked by inspection.

8.11 This subclause of Part 1 is not applicable for traction drive speed controls.

8.14.1 Addition:

The additional safety instructions as specified in 8.14.1.101 shall be given. This part may be printed separately from the “General Machine Safety Warnings”.

8.14.1.1 Addition for item 2) c):

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

- c) **Do not operate the lawnmower in rain or wet conditions. This may increase the risk of electric shock.**

8.14.1.101 Lawnmower safety warnings

- a) **Do not use the lawnmower in bad weather conditions, especially when there is a risk of lightning. This decreases the risk of being struck by lightning.**
- b) **Thoroughly inspect the area for wildlife where the lawnmower is to be used. Wildlife may be injured by the lawnmower during operation.**