

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety –
Part 4-6: Particular requirements for garden blowers,
garden vacuums and garden blower/vacuums**

IEC 62841-4-6:2022

**Outils électroportatifs à moteur, outils portables et machines pour jardins et pelouses – Sécurité –
Partie 4-6: Exigences particulières pour souffleurs de jardin, aspirateurs de jardin et souffleurs/aspirateurs de jardin**



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

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE TOOLS AND LAWN AND GARDEN MACHINERY – SAFETY –**Part 4-6: Particular requirements for garden blowers, garden vacuums and garden blower/vacuums**

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IEC 62841-4-6 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:

Draft	Report on voting
116/622/FDIS	116/637/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. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

This Part 4-6 is to be used in conjunction with the first edition of IEC 62841-1:2014.

This Part 4-6 supplements or modifies the corresponding clauses in IEC 62841-1, so as to convert it into the IEC Standard: Particular requirements for garden blowers, garden vacuums and garden blower/vacuums.

Where a particular subclause of Part 1 is not mentioned in this Part 4-6, that subclause applies as far as reasonable. 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 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 4-6 are numbered starting from 301.

[IEC 62841-4-6:2022](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 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.

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

Part 4-6: Particular requirements for garden blowers, garden vacuums and garden blower/vacuums

1 Scope

IEC 62841-1:2014, Clause 1 is applicable, except as follows:

Addition:

This document applies to hand-held and backpack

- **garden blowers;**
- **garden vacuums;** and
- **garden blower/vacuums.**

This document does not apply to

- walk-behind **garden blowers**, walk-behind **garden vacuums** and walk-behind **garden blower/vacuums;**
- robotic **garden blowers**, robotic **garden vacuums** and robotic **garden blower/vacuums;**
- vacuum cleaners intended primarily for use indoors, for water suction cleaning or animal grooming; and
- blowers intended primarily for use indoors, or animal grooming.

NOTE 101 Vacuum cleaners and water-suction cleaning appliances, including vacuum cleaners for animal grooming are covered by IEC 60335-2-2.

NOTE 102 Vacuum cleaners for commercial use are covered by IEC 60335-2-69.

2 Normative references

IEC 62841-1:2014, Clause 2 is applicable, except as follows.

Addition:

IEC 60664-3:2016, *Insulation coordination for equipment within low-voltage systems – Part 3: Use of coating, potting or moulding for protection against pollution*

IEC 60664-4:2005, *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*

IEC 62841-1:2014, *Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 1: General requirements*

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

ISO 22868:2021, *Forestry and gardening machinery – Noise test code for portable hand-held machines with internal combustion engine – Engineering method (Grade 2 accuracy)*

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

IEC 62841-1:2014, Clause 3 is applicable, except as follows:

Addition:

3.101 debris

organic material of vegetable origin such as leaves and grass clippings

3.102 debris collector

part or combination of parts that provides a means for collecting **debris**

3.103 direct opening action

achievement of contact separation as a direct result of a specified movement of the switch actuator through non-resilient members (e.g. non-dependent upon springs)

3.104 dirty fan construction

construction where the **debris** being vacuumed up comes into contact with the air-moving fan

3.105 functional earth

earthing of a point in equipment or in a system, which is necessary for a purpose other than safety

Note 101 to entry: Examples of the purpose of a **functional earth** include the reduction of the build-up of static electricity and the reduction of electromagnetic emissions.

3.106 garden blower

machine intended to blow **debris**

Note 101 to entry: **Garden blowers** are also known as leaf blowers.

3.106.1

hand-held garden blower

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

Note 101 to entry: See Figure 101.

Note 102 to entry: Designs where the operator's hand can be optionally relieved of the machine weight by attaching the machine to a harness (e.g. a belt harness) are also considered to be hand-held.

3.106.2

backpack garden blower

garden blower designed in such a way that a portion of the machine weight is carried on the operator's back by means of a harness

Note 101 to entry: A machine where only the **separable battery pack** is carried on the operator's back by means of a harness is considered not to be a **hand-held garden blower**.

Note 102 to entry: See Figure 102.

3.107

garden blower/vacuum

machine which can be configured to operate either as a **garden blower** or as a **garden vacuum**

3.107.1

hand-held garden blower/vacuum

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

Note 101 to entry: Designs where the operator's hand can be optionally relieved of the machine weight by attaching the machine to a harness (e.g. a belt harness) are also considered to be hand-held.

3.107.2

backpack garden blower/vacuum

garden blower/vacuum designed in such a way that a portion of the machine weight, but not solely the **debris collector**, is carried on the operator's back by means of a harness

Note 101 to entry: A machine where only the **separable battery pack** is carried on the operator's back by means of a harness is considered not to be a **hand-held garden blower/vacuum**.

3.108

garden vacuum

machine intended to collect **debris** by suction into a **debris collector** which can also have a facility for shredding **debris**

Note 101 to entry: **Garden vacuums** are also known as leaf collectors.

3.108.1

hand-held garden vacuum

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

Note 101 to entry: See Figure 103.

Note 102 to entry: Designs where the operator's hand can be optionally relieved of the machine weight by attaching the machine to a harness (e.g. a belt harness) are also considered to be hand-held.

3.108.2**backpack garden vacuum**

garden vacuum designed in such a way that a portion of the machine weight, but not solely the **debris collector**, is carried on the operator's back by means of a harness

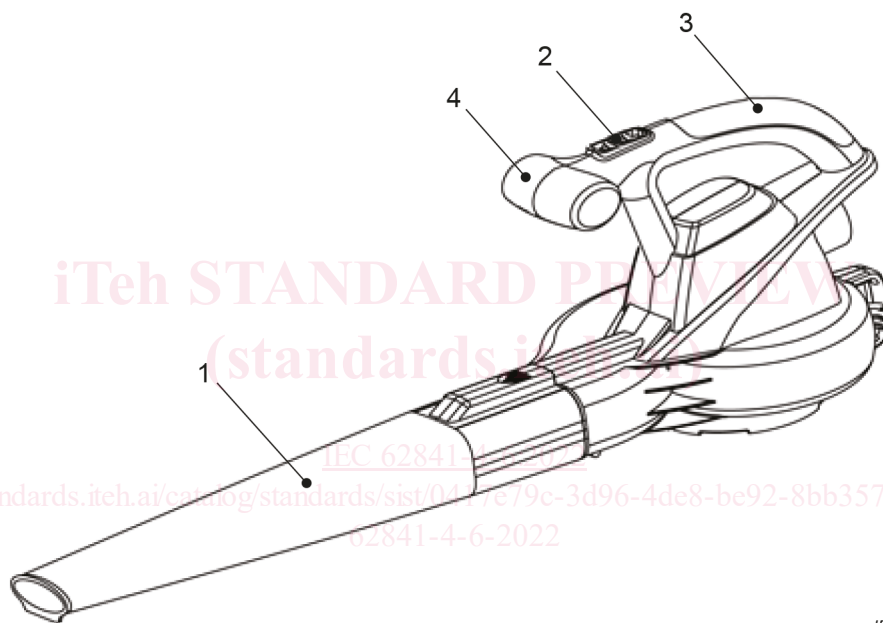
Note 101 to entry: A machine where only the **separable battery pack** is carried on the operator's back by means of a harness is considered not to be a **hand-held garden vacuum**.

3.109**handle**

part intended to be held by the hand for guiding the machine or nozzle in **normal use**

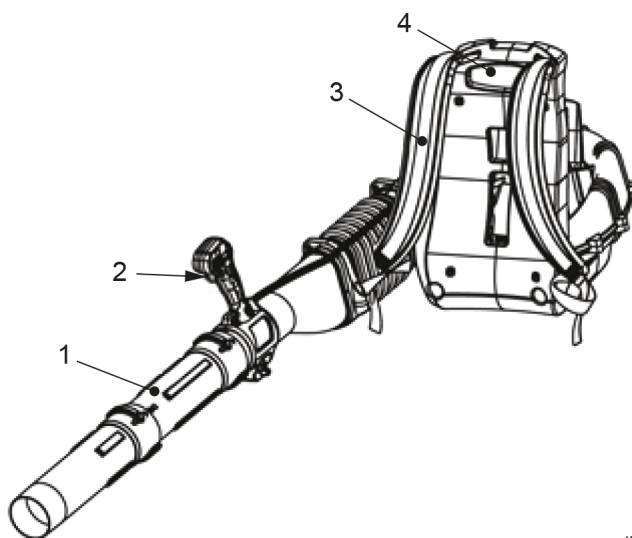
3.110**shredding means**

device designed to cut **debris** into smaller pieces

**Key**

- 1 blower tube
- 2 power switch
- 3 handle
- 4 auxiliary handle

Figure 101 – Example of a hand-held garden blower

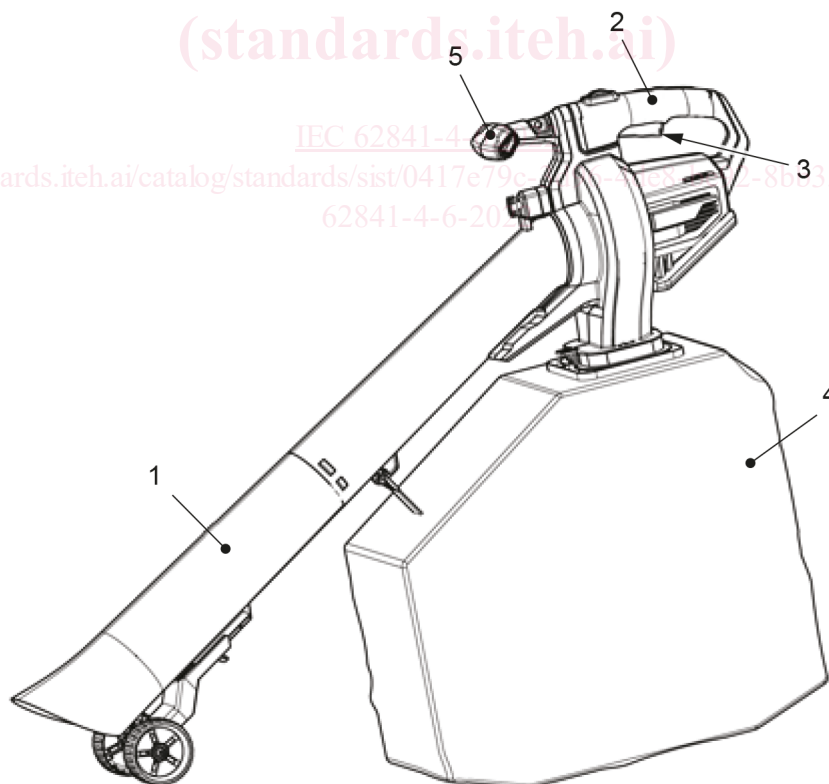


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Key

- 1 blower tube
- 2 power switch
- 3 backpack harness
- 4 auxiliary handle

Figure 102 – Example of a backpack garden blower



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Key

- 1 vacuum tube
- 2 handle
- 3 power switch
- 4 debris collector
- 5 auxiliary handle

Figure 103 – Example of a hand-held garden vacuum

4 General requirements

IEC 62841-1:2014, Clause 4 is applicable.

5 General conditions for the tests

IEC 62841-1:2014, Clause 5 is applicable, except as follows:

5.4 Replacement:

*The tests are carried out with the machine, and/or any movable part of it, placed in the most unfavourable position or configuration in accordance with 8.14.2 that can occur in **normal use**.*

5.7.2 Replacement:

*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.*

5.8 Addition:

*If different **debris collectors** can be mounted on the machine in accordance with 8.14.2 a) and 8.14.2 b), the **debris collectors** are regarded as **attachments**.*

5.17 Addition:

*The mass of a **hand-held garden blower**, **hand-held garden vacuum** or **hand-held garden blower/vacuum** includes the heaviest configuration in accordance with 8.14.2 a) 101), with an empty **debris collector**, if applicable, and excludes any shoulder harness.*

*The mass of a **backpack garden blower**, **backpack garden vacuum** or **backpack garden blower/vacuum** includes the heaviest configuration in accordance with 8.14.2 a) 101), with an empty **debris collector**, if applicable, and includes the shoulder harness.*

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 Machines are tested in each operating configuration as described in 8.14.2.

5.103 Tests specified to be performed at no-load are conducted with the machine fully assembled for use in accordance with 8.14.2 a), but not blowing or vacuuming **debris** and with the **garden blower** outlet or the **garden vacuum** inlet unobstructed.

6 Radiation, toxicity and similar hazards

IEC 62841-1:2014, Clause 6 is applicable.

7 Classification

IEC 62841-1:2014, Clause 7 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 or **class III**.

Compliance is checked by inspection and by the relevant tests.

8 Marking and instructions

IEC 62841-1:2014, Clause 8 is applicable, except as follows:

8.1 Addition:

- the symbol IEC 60417-5018 (2011-07), for machines incorporating a **functional earth** only. **Class II tools** (machines) incorporating a **functional earth** may alternatively be marked with the symbol IEC 60417-6092 (2013-03).

NOTE 101 In the United States of America, the addition above is not applicable.

8.2 Addition:

Machines shall be marked with safety information 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: [/standards.iteh.ai/catalog/standards/sist/0417e79c-3d96-4de8-be92-8bb357fc5b91/iec-62841-4-6-2022](https://standards.iteh.ai/catalog/standards/sist/0417e79c-3d96-4de8-be92-8bb357fc5b91/iec-62841-4-6-2022)

For all machines:

- "⚠ WARNING – Keep bystanders away" or the product safety label specified in Figure AA.1;
- "⚠ WARNING – Wear eye protection", a relevant safety sign of ISO 7010 or one of the product safety labels specified in Figure AA.2.
- "⚠ WARNING – Wear ear protection", a relevant safety sign of ISO 7010 or the product safety label specified in Figure AA.3. 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).

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

- "Do not expose to rain"; or
- the product safety label specified in Figure AA.4.

For mains supplied machines:

- "Remove plug from the mains immediately if the cable is damaged or cut"; or
- the product safety label specified in Figure AA.5.

A combination of ISO safety signs, such as eye and ear protection, is allowed. In addition, a combination of product safety labels as specified in Figure AA.6 is allowed.

8.8 Addition:

- Terminals for **functional earth** shall be indicated by symbol IEC 60417-5018 (2011-07).

8.12 Replacement of the first paragraph:

Markings required by this document shall be legible and durable. Signs or product safety labels shall be in contrast such as colour, texture or relief to their background, such that the information or instructions provided by the signs or product safety labels are clearly legible when viewed with normal vision from a distance of (500 ± 50) mm. Signs or product safety labels need not be in accordance with the colour requirements of ISO 3864-2. If markings are embossed, stamped, etched, engraved 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. 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 IEC 62841-1:2014.

8.14.1.1 Replacement of item 1) a):

- a) **Keep work area clean and well lit. Cluttered or dark areas invite accidents.**

NOTE 101 The warning in item a) above can be optionally omitted.

8.14.1.101 Garden blower, garden vacuum and garden blower/vacuum safety warnings

In the safety warnings below, the term "machine" may be replaced by alternate wording (e.g. "**garden blower**", "**garden vacuum**", "**garden blower/vacuum**", "leaf blower" or "leaf collector").

- a) **Do not use the machine in bad weather conditions, especially when there is a risk of lightning. This decreases the risk of being struck by lightning.**
- b) **Before use, check the supply cord and any extension cord for signs of damage or aging. Do not touch the cord before disconnecting the supply. Do not use the machine if the cord is damaged or worn. A damaged supply cord may result in electric shock, fire and/or serious injury.**
- c) **Check the debris collector frequently for wear or deterioration. A worn or damaged debris collector may increase the risk of personal injury.**

NOTE 101 The warning in item c) above is omitted if the machine only operates as a **garden blower**.

- d) **Wear eye protection and ear protection. Adequate protective equipment will reduce the risk of personal injury.**

NOTE 102 The ear protection portion of the warning in item d) above can be optionally omitted if the measured emission sound pressure level at the operator's ear in accordance with Annex I does not exceed 85 dB(A).

- e) **While operating the machine, always wear non-slip and protective footwear. Do not operate the machine when barefoot or wearing open sandals. This reduces the risk of injury to the feet.**
- f) **Do not wear loose fitting clothing or articles such as scarves, strings, chains, ties, etc., that could get drawn into the air inlets. Tie back or cover long hair to make sure it does not get drawn into the air inlets. If any of these items are drawn into the air inlets, it can increase the risk of personal injury.**
- g) **Keep bystanders away while operating the machine. Thrown debris can increase the risk of personal injury.**
- h) **Do not use in vacuum mode without the debris collector in place. Thrown objects can increase the risk of personal injury.**