BS EN 50636-2-100:2014

BSI Standards Publication

Household and similar electrical appliances — Safety

Part 2-100: Particular requirements for hand-held mains-operated garden blowers, vacuums and blower vacuums

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National foreword

This British Standard is the UK implementation of EN 50636-2-100:2014.

The UK participation in its preparation was entrusted to Technical Committee CPL/116, Safety of motor-operated electric tools.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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EUROPÄISCHE NORM

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Household and similar electrical appliances - Safety - Part 2-100: Particular requirements for hand-held mains-operated garden blowers, vacuums and blower vacuums

Appareils électrodomestiques et analogues - Sécurité - Partie 2-100 : Exigences particulières pour les souffleurs, aspirateurs et aspiro-souffleurs portatifs pour le jardin, alimentés par le secteur

Sicherheit elektrischer Geräte für den Hausgebrauch und ähnliche Zwecke - Teil 2-100: Besondere Anforderungen für handgehaltene netzbetriebene Laubgebläse und/oder -sauger

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Foreword

This document (EN 50636-2-100:2014) has been prepared by CLC/TC 116, "Safety of motor-operated electric tools".

The following dates are 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) 2014-12-20
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2016-11-25

EN 50636-2-100:2014 includes the following significant technical changes:

– rewording of some clauses;

– alignment to the European Machinery Directive 2006/42/EC;

– alignment to EN 60335-1:2012.

This document is to be used in conjunction with EN 60335-1:2012 and its amendments "*Household and similar electrical appliances - Safety – Part 1: General requirements*".

When "Part 1" is mentioned in this standard, it refers to EN 60335-1:2012.

This document supplements or modifies the corresponding clauses in Part 1, so as to convert that publication into the European Standard "*Particular requirements for **hand-held** mains-operated **garden blowers**, **vacuums** and **blower vacuums**"*.

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

Compliance with the relevant clauses of Part 1 together with this Part 2 provides one means of conforming to the specified essential health and safety requirements of the Directive.

This European Standard follows the overall requirements of EN ISO 12100:2010.

The following numbering system is used:

– subclauses, notes, tables and figures that are numbered starting from 101 are additional to those in Part 1;

– additional annexes are lettered AA, BB, etc.;

NOTE In this European Standard the following print types are used:
- requirements proper: in roman type;
- *test specifications: in italic type;*
- explanatory matter: in smaller 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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Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive.

For the relationship with EU Directive 2006/42/EC, see informative Annex ZZ, which is an integral part of this document.

Warning: Other requirements arising from other EU Directives can be applicable to the products falling within the scope of this European Standard.

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Introduction

This document is a type C standard as stated in EN ISO 12100:2010.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered is as indicated in the scope of this document.

When provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence over the other standards, for machines which have been built and designed to the provisions of this type C standard.

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1 Scope

Replacement:

This European Standard specifies the safety requirements and their verification for the design and construction of **hand-held** mains-operated electrical **garden vacuums,** and **garden blower/vacuums** with or without **shredding means** and **garden blowers, hereinafter referred to as machine(s),** for use at and around the home or for similar purposes, their **rated voltage** being not more than 250 V single phase.

This European Standard does not apply to:

- machines powered by combustion engines;

  NOTE 1 Combustion engine driven machines are covered by EN 15503.

- machines driven by an external power source;
- machines powered from a 3 phase supply;
- vacuum cleaners intended primarily for use indoors, for water suction cleaning or animal grooming;

  NOTE 2 EN 60335-2-2 deals with this type of machine.

- walk-behind, hand-guided (support-wheeled) and ride-on machines;
- combination of a mains driven and/or battery powered blowers and vacuums with internal combustion engines (hybrid);
- **back-pack powered blower**s and **back-pack powered vacuum**s.

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

This European Standard deals with all the significant hazards presented by **hand-held** mains-operated electrical **garden vacuums, garden blower/vacuums** with or without **shredding means** and **garden blowers** when they are used as intended and under conditions of misuse which are reasonably foreseeable.

This European Standard is not applicable to machines, which are manufactured before the date of publication of this document by CENELEC.

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2 Normative references

This clause of Part 1 is applicable except as follows:

Addition:

EN 60335-1:2012, *Household and similar electrical appliances – Safety – Part 1: General requirements* (IEC 60335-1:2010, mod.)

EN 60068-2-75:1997, *Environmental testing – Part 2: Tests – Test Eh: Hammer tests* (IEC 60068-2-75:1997)

EN 62233:2008, *Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure* (IEC 62233:2005, mod.)

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

EN 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 3744:2010)

EN ISO 4871:2009, *Acoustics – Declaration and verification of noise emission values of machinery and equipment* (ISO 4871:1996)

EN 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* (ISO 11201:2010)

EN ISO 11688-1:2009, *Acoustics – Recommended practice for the design of low-noise machinery and equipment – Part 1: Planning* (ISO/TR 11688-1:1995)

EN ISO 12100:2010*, Safety of machinery - General principles for design - Risk assessment and risk reduction* (ISO 12100:2010)

EN ISO 13849-1:2008, *Safety of machinery – Safety-related parts of control systems – Part 1: General principles for design* (ISO 13849-1:2006)

EN ISO 13849-2:2012, *Safety of machinery – Safety-related parts of control systems – Part 2: Validation* (ISO 13849-2:2012)

EN ISO 13857:2008, *Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs* (ISO 13857:2008)

ISO 7000, *Graphical symbols for use on equipment – Registered symbols*

ISO 11090-1:1998*, Machine tools – Test conditions for die sinking electro-discharge machines (EDM) – Terminology and testing of accuracy – Part 1: Single column machines (cross slide table type and fixed table type)*

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3 Definitions

This clause of Part 1 is applicable except as follows:

3.1.9 *Replacement:*

3.1.9
normal operation
the machine is operated at **rated voltage** when fully assembled in the most onerous operating conditions

Addition:

3.101
debris collector
part or combination of parts that provides a means for collecting **debris**

3.102
discharge opening
gap or opening through which **debris** may be discharged

3.103
guard
part of the machine or component incorporated to provide protection for the operator and/or bystander by means of a physical barrier

3.104
hand held garden blower
machine supported by hand, possibly assisted by a harness, etc., which blows **debris** (subsequently referred to as **blower**)

3.105
hand held garden blower/vacuum
machine supported by hand, possibly assisted by a harness, etc., which may perform as a **garden blower**, or, as a **garden vacuum** for picking up **debris** into a **debris collector**

Note 1 to entry In the **vacuum** mode there may also be a facility for shredding material.

3.106
hand held garden vacuum
machine supported by hand, possibly assisted by a harness, etc., which collects **debris** into a **debris collector**

Note 1 to entry This may also have a facility for shredding material.

3.107
handle
any part likely to be hand-held for guiding the machine in normal use

3.108
intended use
any use of the machine which is reasonably foreseeable, as described in the user instructions, and which is consistent with such activities as operating, starting, stopping or connecting to (or disconnecting from) a power source

3.109
operator control
any control requiring operator actuation to perform specific functions

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3.110
clean fan construction
a construction where the **debris** being vacuumed up does not come into contact with the air-moving fan

3.111
dirty fan construction
a construction where the **debris** being vacuumed up comes into contact with the air-moving fan

3.112
operator presence control
a control designed so that it will automatically interrupt power to a drive when the operator's actuating force is removed

3.113
lock-on operator control
a control designed so that power to a drive is sustained when the operator's actuating force is removed

3.114
back-pack powered blower
garden blower designed to have the power source carried on the operator's back by means of a supporting device consisting of a frame and harness

3.115
back-pack powered vacuum
garden vacuum designed to have the power source and collector carried on the operator's back by means of a supporting device

3.116
debris
any organic material of vegetable origin such as leaves and grass clippings

3.117
shredding means
device designed to cut **debris** into smaller pieces

3.118
tortuous path
a design method which prevents access for the upper extremities by forcing them to orientations which are beyond their natural range of movements

4 General requirement

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable except as follows:

5.6 *Addition:*

Electronic speed control devices are set for the highest speed.

All tests of Clause 21 shall be carried out on a new machine.

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6 Classification

This clause of Part 1 is applicable except as follows:

6.1 *Replacement:*

Machines shall be of **class II** with respect to protection against electric shock.

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:*

The machines shall be marked with

– business name and full address of the manufacturer and, where applicable his authorized representative;

– year of construction;

– designation of the machine,
designation of machine may be achieved by a combination of letters and/or numbers provided this code is explained by giving the explicit designation such as “garden vacuums”, “garden blowers”, “garden blower/vacuums”, etc. in the instructions supplied with the machine;

NOTE 1 An example of such code is “A123B”.

– designation of series or type,
allowing the technical identification of the product. This may be achieved by a combination of letters and/or numbers and may be combined with the designation of machine;

NOTE 2 The term “designation of series or type” is also known as model number.

– serial number, if any;

– mandatory markings;

NOTE 3 For machines and their related products intended to be put on the market in the EEA, CE-marking as defined in the applicable European Directive(s), e.g. the Machinery Directive.

– rated power in watts or **rated current** in amperes;

Guards designed to be opened or removed shall have a sign warning of the relevant hazard visible on the machine both when the **guard** is closed and when it is opened or removed.

Controls which may give rise to a hazard (e.g. mains switch in accordance with Clause 24.1) when operated shall be marked or so placed as to indicate clearly which part of the machine they control.

Where replaceable during normal use, except for spring type tines, the tines shall be marked to identify the part number(s) and the manufacturer, importer or supplier.

Marking giving warning information shall be easily legible and located as close as practicable to the relevant hazard.

The substance of the following warnings shall be placed in a prominent position on the machine. If a pictogram is used it shall be that shown in Annex AA. It shall be in contrasting colours to the base material. If it is embossed, stamped or cast colours are not required.

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Markings or safety signs giving cautionary information shall be located close to the hazard.

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

WARNING:

– Switch off and remove plug from mains before cleaning or maintenance.

– Read the operator's manual.

– Do not expose to rain.

– Wear eye protection.

– Keep bystanders away.

7.9 This clause of Part 1 is not applicable.

7.12 *Replacement:*

An instruction manual shall be supplied with the machine, giving operating, servicing, maintenance and safety instructions that comply as appropriate with EN ISO 12100:2010, 6.4. The words 'Original instructions' shall appear on the language version(s) verified by the manufacturer or his authorised representative. Where no 'Original instructions' exist in the official language(s) of the country where the machine is to be used, a translation into that/those language(s) shall be provided by the manufacturer or his authorised representative or by the person bringing the machine into the language area in question. The translations shall bear the words 'Translation of the original instructions', and they shall be accompanied by a copy of the 'Original instructions'.

This instruction manual shall include:

a) a repeat of those warnings required to be marked on the machine together with further explanation, where appropriate. Where safety signs are used in the marking on the machine, their function shall be explained;

b) a warning to never allow children, persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge or people unfamiliar with these instructions to use the machine, local regulations may restrict the age of the operator;

c) a warning to never operate the machine while people, especially children, or pets are nearby;

d) a general description of the machine, the **intended use**, instructions for the proper use of the machine including advice on what the machine should be used for, how to use it for the intended purpose(s) and any reasonably foreseeable misuse thereof;

e) warnings concerning ways - that experience has shown might occur - in which the machinery shall not be used;

f) instructions for the proper assembly and disassembly of the machine for use, if the machine is not supplied in a completely assembled form;

g) instructions for proper adjustment and any necessary user maintenance of the machine, including timescales and a warning of the danger of moving hazardous parts;

h) instructions for the recommended replacement or repair of, or service attention to, critical components. Where parts are consumable, the spare part shall be clearly identified, e.g. by the use of a part number or other means;

i) instructions on the operation of all controls;

j) information how to start the machine safely;

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k) instructions for the operating position and the correct and safe operation of the machine such as moving, safe positioning, handling, clearing blockages and keeping the discharge chute clear of processed material for use, preparation, maintenance and storage of the machine;

l) an advice to not overreach and to keep the balance at all times, to always be sure of the footing on slopes and to walk, never run;

m) a warning not to touch moving hazardous parts before the machine is disconnected from the mains and the moving hazardous parts have come to a complete stop;

n) an advice on the use, length and type of extension cords to be used (not lighter than required by 25.7);

o) if a collecting facility is provided with the machine, instructions for when and how to attach and detach the collection device to and from the machine;

p) information about the residual risks that remain despite the inherent safe design measures, safeguarding and complementary protective measures adopted;

q) instructions to always wear substantial footwear and long trousers while operating the machine;

r) instructions to disconnect the supply (e.g. remove the plug from the mains or remove the disabling device)

- whenever the machine is left by the user;
- before clearing a blockage;
- before checking, cleaning or working on the machine;
- after striking a foreign object to inspect the machine for damage;
- if the machine starts to vibrate abnormally, for immediately check;

s) instructions when, where and how to inspect the machine, the supply and extension cord for signs of damage or ageing and, if permitted, how to make repairs;

t) a warning never to operate the machine with defective **guards** or shields, or without safety devices, or if the cord is damaged or worn;

u) an advice not to connect a damaged cord to the supply or touch a damaged cord before it is disconnected from the supply for the reason that damaged cords can lead to contact with live parts;

v) an advice to keep extension cords away from moving hazardous parts to avoid damages to the cords which can lead to contact with live parts;

w) the operating method to be followed in the event of accident or breakdown;

x) instructions how to disconnect the machine from the mains, if the cord becomes damaged or entangled during use;

y) recommendations:

- to connect the machine only to a supply circuit protected by a residual current device (RCD) with a tripping current of not more than 30 mA,
- to avoid using the machine in bad weather conditions especially when there is a risk of lightning;

z) information about airborne noise emissions of the machine according to Annex CC, this includes:

- give the A-weighted emission sound pressure level at the operator position as measured according to Annex CC, where this exceeds A-weighted 70 dB(A); where this level does not exceed A-weighted 70 dB(A), this fact shall be indicated;
- give the sound power level emitted by the machinery as determined according to Annex CC, where the A-weighted emission sound pressure level at the operator position exceeds A-weighted 80 dB;
- the uncertainties surrounding the determined noise emission values according to Annex CC.

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aa) the vibration total value to which the hands are subjected as determined according to Annex BB, where this exceeds 2,5 m/s²; where this level does not exceed 2,5 m/s², this fact shall be indicated;

bb) the uncertainty of measurement for vibration value;

cc) instructions how to proceed in case of abnormal vibrations;

dd) mass in kilograms;

ee) an advice to use hearing protection.

NOTE Examples of safety instructions are given Annex EE.

Compliance shall be checked by inspection.

7.12.1 This clause of Part 1 is applicable.

7.12.5 to **7.12.6** These clauses of Part 1 are applicable.

7.15 *Replacement:*

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 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.

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 applicable.

11 Heating

This clause of Part 1 is applicable.

11.7 *Replacement:*

Machines are operated until steady state conditions are reached.

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.

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