



SLOVENSKI STANDARD SIST EN 50636-2-92:2015

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Gospodinjski in podobni električni aparati - Varnost - 2-92. del: Posebne zahteve za ročno upravljane rahljalnike in prezračevalnike travne ruše, priključene na električno omrežje

Household and similar electrical appliances - Safety - Part 2-92: Particular requirements for pedestrian-controlled mains-operated lawn scarifiers and aerators

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Sicherheit elektrischer Geräte für den Hausgebrauch und ähnliche Zwecke - Teil 2-92: Besondere Anforderungen für handgeführte netzbetriebene Rasen-Vertikutierer und Rasen-Lüfter

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Appareils électrodomestiques et analogues - Sécurité - Partie 2-92: Règles particulières pour les scarificateurs de gazon et les aérateurs fonctionnant sur le réseau et pour conducteur à pied

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Household and similar electrical appliances - Safety - Part 2-92: Particular requirements for pedestrian-controlled mains-operated lawn scarifiers and aerators

Appareils électrodomestiques et analogues - Sécurité -
Partie 2-92: Règles particulières pour les scarificateurs de
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Sicherheit elektrischer Geräte für den Hausgebrauch und
ähnliche Zwecke - Teil 2-92: Besondere Anforderungen für
handgeführte netzbetriebene Rasen-Vertikutierer und
Rasen-Lüfter

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

This document (EN 50636-2-92:2014) has been prepared by CLC/TC 116 "Safety of motor-operated electric tools".

The following dates are fixed:

- latest date by which this document has to be implemented (dop) 2014-12-20
at national level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2016-09-02

This document supersedes EN 60335-2-92:2005.

EN 60335-2-92:2014 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 "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 **pedestrian-controlled walk-behind mains operated scarifiers and aerators**".

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 document 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.

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

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. Common modifications are indicated by a vertical line in the left margin of the text.

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(s).

For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of this document.

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Introduction

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

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

This clause of Part 1 is replaced by the following.

This European Standard specifies safety requirements and their verification for the design and construction of **pedestrian controlled** walk-behind mains operated scarifiers and aerators, hereinafter referred to as 'machine(s)', which are designed for re-generating lawns by, for instance, combing out grass, thatch and moss or cutting vertically into the lawn face using **tines** which rotate about a horizontal axis. This standard applies in conjunction with Part 1.

NOTE 1 Lawn scarifiers are also known as lawn rakes.

This European Standard does not apply to non-powered scarifiers and aerators, battery powered scarifiers and aerators, vertical axis scarifiers and aerators or those aerators which cut into the soil by means of a reciprocating motion and ride-on machines.

This European Standard does not apply to

- lawnmowers (EN 60335-2-77);
- lawn trimmers (EN 60335-2-91);
- lawn edge trimmers (EN 60335-2-91);
- lawn edgers, flail mowers, sickle-bar mowers or agricultural mowers.

This European Standard is not applicable to aerators/scarifiers which are manufactured before the date of publication of this document.

This European Standard deals with all the significant hazards presented by **pedestrian-controlled lawn scarifiers and lawn aerators** when they are used as intended and under conditions of misuse which are reasonably foreseeable.

NOTE 2 Combustion engine machines are covered by EN 13684.

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, modified)*

EN ISO 354:1993, *Acoustics — Measurement of sound absorption in a reverberation room (ISO 354:2003)*

EN ISO 2758:2003, *Paper — Determination of bursting strength (ISO 2758:2001)*

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

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

EN ISO 20643:2008; *Mechanical vibration — Hand-held and hand-guided machinery — Principles for evaluation of vibration emission (ISO 20643:2005)*

3 Terms and definitions

This clause of Part 1 is applicable except as follows.

3.1.9 Replacement:

3.1.9 normal operation

operation of the machine under the following conditions: the machine is operated at **rated voltage** with the load necessary to attain **rated power input**

Addition:

3.101 braking system

combination of one or more brakes and related means of operation and control

3.102 catcher

part or combination of parts which provides a means for collecting grass, thatch, moss or other debris

3.103 control

means or device which will control the operation of the machine or any specific operating function thereof

3.104 discharge chute

extension of the **tine enclosure** from the **discharge opening**, generally used to control the discharge of material from the **tines**

3.105 discharge opening

gap or opening in the **tine enclosure** through which grass, thatch, moss and other debris may be discharged.

a) front discharge

denotes throwing out grass, thatch and moss so that they will be collected in a **catcher** which is located in front of the **tines**

b) rear discharge

denotes throwing out grass, thatch and moss so that they will be collected in a **catcher** which is located behind the **tines**

3.106**guard**

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

3.107**handle**

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

3.108**hit**

test projectile passing completely through all layers of the target material

3.109**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 mains supply

3.110**lawn aerator**

corer

machine which uses the ground to determine the depth of cut, designed for penetrating the lawn surface

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3.111**lawn scarifier**

machine designed to scratch the surface, or earth face thereby also combing the lawn

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3.112**maximum operating motor speed**

highest motor speed obtainable when the motor is adjusted in accordance with the instructions, with the tines engaged

3.113**operator control**

any control requiring the operator's actuation to perform specific functions

3.114**operator presence control**

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

3.115**operator zone**

zone for persons operating a lawn scarifier or aerator (presented in Figure 105)

3.116**parking brake**

device incorporated into the machine which, when operated, prevents the machine from moving from a stationary position and remains applied without the operator present

3.117**pedestrian-controlled**

ground-supported, controlled by an operator walking behind

3.118**service brake**

designated primary means for decelerating and stopping a machine from its ground travel speed

3.119**tine**

mechanism used to provide the penetrating or scratching action of a machine

3.120**tine enclosure**

part or assembly which provides the protective means around the **tines**

3.121**tine tip circle**

path described by the outermost point of the **tine** as it rotates about its shaft axis

3.122**traction drive**

means (system) used to transmit power from the motor to the ground drive means

3.123**width of cut**

total width of scarification/aeration measured across the **tines** at right angles to the direction of travel

3.124**working position**

any depth setting of the **tines** designated by the manufacturer

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4 General requirement

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This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable except as follows.

5.2 Addition:

Tests carried out in Clauses 20 and 21 require a new machine for each test. If testing requires the same test to be carried out on the machine for different functions a new machine shall be used for each test.

5.5 Addition:

*During the tests the **tines** are adjusted in accordance with the manufacturer's instructions.*

5.6 Addition:

*Electronic speed **control** devices are set for the **maximum operating motor speed**.*

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.

6.2 Addition:

Machines shall be at least IPX4.

7 Marking and instructions

This clause of Part 1 is applicable except as follows.

7.1 Addition:

The machines shall be marked with the following minimum information:

- business name and full address of the manufacturer and, where applicable his authorized representative;
- designation of the machine, (standards.iteh.ai)
designated by a combination of letters and/or numbers. The designation may be provided in the form of a code, providing that this code is explained by giving the explicit designation such as “scarifiers” or “aerators”, etc. in the instructions supplied with the machine;

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

- year of construction, that is the year in which the manufacturing process is completed;
- 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;
- 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. **operator presence control** for the **tines**) when operated shall be marked or so placed as to indicate clearly which part of the machine they control;
- 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.

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:

- WARNING – Read user instructions;
- WARNING – Beware of sharp **tines**, keep fingers and toes away. Remove plug from mains before maintenance, adjusting, cleaning or if the cord is entangled or damaged;
- **Tines** continue to rotate after the motor is switched off;
- Keep flexible cord away from the **tines**;
- Keep bystanders away,

and as appropriate to the machine design:

- Wear eye and/or ear protection.

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

Compliance shall be checked by inspection.

7.6 Addition:

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NOTE 101 Information on operator symbols may be found in EN ISO 3767-1 and EN ISO 3767-3, ISO 11684 and in ISO 3864 for colours.

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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 part number of the spare part shall be specified;
- i) instructions on the operation of all controls;
- j) information how to start the machine safely, especially with a view to necessary tilting of the machine and keeping both hands in the operating position before returning the machine to the ground;
- 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)
 - 1) whenever the machine is left by the user;
 - 2) before clearing a blockage;
 - 3) before checking, cleaning or working on the machine;
 - 4) after striking a foreign object to inspect the machine for damage;
 - 5) 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
 - 1) 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,
 - 2) 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 DD, this includes:
 - 1) the A-weighted emission sound pressure level at the operator position as determined according to Annex DD, where this exceeds 70 dB(A); where this level does not exceed 70 dB(A), this fact shall be indicated;