



**SLOVENSKI STANDARD**  
**SIST EN 15503:2010+A2:2016**  
**01-marec-2016**

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**Oprema za nego vrta - Vrtni pihalniki, vrtni sesalniki in vrtni pihalniki/sesalniki - Varnost**

Garden equipment - Garden blowers, vacuums and blower/vacuums - Safety

Gartengeräte - Blasgeräte, Sauggeräte und Blas-/Sauggeräte für den Garten - Sicherheit

Matériel de jardinage - Souffleurs, aspirateurs et aspirateurs-souffleurs de jardin - Sécurité

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**Ta slovenski standard je istoveten z: EN 15503:2009+A2:2015**

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**ICS:**

65.060.70      Vrtnarska oprema      Horticultural equipment

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EUROPEAN STANDARD

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## Garden equipment - Garden blowers, vacuums and blower/vacuums - Safety

Matériel de jardinage - Souffleurs, aspirateurs et  
aspirateurs-souffleurs de jardin - Sécurité

Gartengeräte - Bläsergeräte, Sauggeräte und Blas-  
/Sauggeräte für den Garten - Sicherheit

This European Standard was approved by CEN on 22 September 2009 and includes Amendment 1 approved by CEN on 7 September 2013 and Amendment 2 approved by CEN on 7 November 2015.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

<b>Contents</b>	<b>Page</b>
European foreword.....	5
Introduction .....	6
<b>1 Scope .....</b>	<b>7</b>
<b>2 Normative references .....</b>	<b>7</b>
<b>3 Terms and definitions .....</b>	<b>8</b>
<b>4 List of significant hazards .....</b>	<b>10</b>
<b>5 Safety requirements and/or protective measures .....</b>	<b>11</b>
5.1 General.....	11
5.2 All machines.....	12
5.3 Hot parts guarding.....	12
5.4 Fan housing strength and rigidity.....	13
5.4.1 Requirements .....	13
5.4.2 Fan housing strength and rigidity test of hand-held and backpack powered machines ...	13
5.5 Structural integrity of vacuums .....	13
5.5.1 Requirements .....	13
5.5.2 Structural integrity test .....	13
5.6 Handles and controls .....	14
5.6.1 Controls.....	14
5.6.2 Handles .....	14
5.6.3 Harness for machines other than those with back-pack power unit .....	15
5.7 Starting device.....	15
5.8 Noise .....	15
5.8.1 Reduction by design and protective measures .....	15
5.8.2 Reduction by information .....	16
5.8.3 Noise emission measurement.....	16
5.9 Vibration .....	16
5.9.1 Reduction by design and protective measures .....	16
5.9.2 Reduction by information .....	16
5.9.3 Vibration measurement.....	16
5.10 Protection from exhaust fumes.....	16
5.11 Electrical requirements .....	16
5.11.1 General.....	16
5.11.2 Ignition circuit.....	16
5.12 Fuel tank openings.....	17
5.13 Additional requirements for back-pack powered units .....	17
5.13.1 Handgrip.....	17
5.13.2 Back-pack support and harness .....	17
<b>6 Information for use .....</b>	<b>17</b>
6.1 Instruction handbook.....	17
6.2 Marking.....	19
6.3 Warnings.....	19
6.4 Durability of markings and warnings.....	20
<b>Annex A (normative) Noise test code – Engineering method (Grade 2 of accuracy) .....</b>	<b>22</b>

A.1	General .....	22
A.2	Machine conditions.....	22
A.3	Mounting and orientation of the machine .....	22
A.3.1	Mounting of the machine on the test fixture.....	22
A.3.2	Orientation of the machine for the A-weighted sound power level measurement .....	23
A.3.3	Position of the microphone for the A-weighted sound pressure level measurement.....	23
A.4	Test procedure .....	24
A.4.1	General .....	24
A.4.2	Idling .....	25
A.4.3	Racing.....	25
A.5	Information to be reported.....	25
A.5.1	General .....	25
A.5.2	Machine under test.....	25
A.5.3	Acoustic environment.....	25
A.5.4	Instrumentation.....	25
A.5.5	Acoustical and other data.....	25
A.5.6	Calculated equivalent sound levels for work cycles.....	27
A.6	Declaration of noise emission data .....	28
Annex B (normative)	Measurement of vibration values at the handles .....	29
B.1	General .....	29
B.2	Measurement direction and location .....	29
B.3	Adjustment of the machine before test.....	29
B.4	Test procedure .....	30
B.4.1	General .....	30
B.4.2	Idling .....	30
B.4.3	Racing.....	30
B.5	Information to be reported.....	30
B.5.1	General .....	30
B.5.2	Machine under test.....	30
B.5.3	Instrumentation.....	30
B.5.4	Vibration and other data.....	31
B.5.5	Calculation of equivalent vibration total values .....	31
B.6	Declaration and verification of vibration values .....	32
Annex C (informative)	Examples of safety signs General .....	34
Annex D (normative)	Tortuous path test.....	36
D.1	Requirements.....	36
D.2	Test procedure .....	36

EN 15503:2009+A2:2015 (E)

<b>D.3 Test acceptance.....</b>	<b>39</b>
<b>Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC.....</b>	<b>40</b>
<b>Bibliography .....</b>	<b>41</b>

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## European foreword

This document (EN 15503:2009+A2:2015) has been prepared by Technical Committee CEN/TC 144 “Tractors and machinery for agriculture and forestry”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2016, and conflicting national standards shall be withdrawn at the latest by June 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document includes Amendment 1 approved by CEN on 2013-09-07 and Amendment 2 approved by CEN on 2015-11-07.

This document supersedes  $\boxed{A_2}$  EN 15503:2009+A1:2013  $\boxed{A_2}$ .

The start and finish of text introduced or altered by amendment is indicated in the text by tags  $\boxed{A_1}$   $\boxed{A_1}$  and  $\boxed{A_2}$   $\boxed{A_2}$ .

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

$\boxed{A_1}$  For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.  $\boxed{A_1}$

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According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## Introduction

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

The machinery concerned and the extent to which hazards, hazardous situations and hazardous events are covered are 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 provisions of the other standards, for machines that have been designed and built according to the provisions of this type C standard.

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## 1 Scope

This European Standard specifies the safety requirements and their verification for the design and construction of hand-held combustion engine powered and back-pack combustion engine powered, garden vacuums and garden blower/vacuums with or without shredding means and garden blowers, designed for one operator only. In addition, it specifies the type of information on safe working practices (including residual risks) to be provided by the manufacturer.

Throughout this European Standard the term 'machine' is used to mean all the types of garden blowers and vacuums covered by it.

This European Standard deals, with all hazards, hazardous situations and events relevant to these machines when they are used as intended and under the conditions foreseen by the manufacturer (see Clause 4), except for:

- vibration of backpack machines;
- structural integrity for blowers and blower vacuums;
- strength for harnesses and back-pack supports.

This European Standard is not applicable to:

- walk-behind, hand-guided (support-wheeled) and ride-on machines;
- mains driven and battery powered blowers and vacuums of combinations thereof;

NOTE EN 60335-1 [1] and IEC 60335-2-100 [2] give the safety requirements for mains driven blowers and blower vacuums, vacuum cleaners for household and industrial use

This European Standard is not applicable to machines which are manufactured before the date of its publication as EN.

## 2 Normative references

**[A1]** The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies. **[A1]**

EN 1088 **[A1]** *deleted text [A1], Safety of machinery — Interlocking devices associated with guards — Principles for design and selection*

EN 14930:2007, *Agricultural and forestry machinery and gardening equipment — Pedestrian controlled and hand-held machines — Determination of accessibility of hot surfaces*

EN ISO 3744:2009, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Engineering method in an essentially free field over a reflecting plane (ISO 3744:1994)*

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

EN ISO 11201:2009, *Acoustics — Noise emitted by machinery and equipment — Measurement of emission sound pressure levels at a work station and at other specified positions — Engineering method in an essentially free field over a reflecting plane (ISO 11201:1995, including Cor 1:1997)*

**EN 15503:2009+A2:2015 (E)**

EN ISO 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction* <sup>(A1)</sup>

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

EN ISO 22867:2008, *Forestry machinery — Vibration test code for portable hand-held machines with internal combustion engine — Vibration at the handles* (ISO 22867:2004, including Cor 1:2006)

EN ISO 22868:2008, *Forestry machinery — Noise test code for portable hand-held machines with internal combustion engine — Engineering method* (Grade 2 accuracy) (ISO 22868:2005)

IEC 60068-2-75:1997, *Environmental testing — Part 2: Tests — Test Eh: Hammer tests*

IEC 61032:1997, *Protection of persons and equipment by enclosures — Probes for verification*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in <sup>(A1)</sup> EN ISO 12100:2010 <sup>(A1)</sup> and the following apply:

#### 3.1

##### **garden blower**

machine which moves debris by the force of blasting air

#### 3.2

##### **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

#### 3.3

##### **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

#### 3.4

##### **debris**

organic material of vegetable origin such as leaves and grass clippings

#### 3.5

##### **debris collector**

part or combination of parts of the machine designed to contain the debris

#### 3.6

##### **dirty fan construction**

construction where the debris being collected passes the air-moving fan

#### 3.7

##### **garden vacuum**

machine which collects debris into a debris collector by means of air suction

**3.8****guard**

physical barrier, designed as part of the machine, to provide protection

**3.9****handle**

part of the machine designed for holding or carrying the machine during normal use

**3.10****hand-held garden blower**

garden blower designed to be held by hand, possibly assisted by a harness

**3.11****hand-held garden vacuum**

garden vacuum held by hand, possibly assisted by a harness

**3.12****normal operation**

use of the machine which is reasonably foreseeable, and which is consistent with operating, i.e. starting, stopping and re-fuelling

**3.13****normal use**

normal operation, plus routine maintenance, servicing, cleaning, transporting, attaching or removing accessories, and making ordinary adjustments as determined by the manufacturer's instructions

**3.14****operator control**

part of the machine requiring operator actuation

**3.15****shredding means**

means designed to cut debris into smaller pieces

**3.16****throttle locking device**

device for temporarily arresting the throttle in a partially open position, to aid (assist) starting

**3.17****throttle setting device**

arrest device allowing the throttle to be temporarily fixed in and released from any required position to ease working with the machine over a period of time

**A<sub>2</sub>****3.18****tortuous path**

design principle which prevents access for fingers by requiring their joints and those of wrist and elbow to adopt orientations/articulations which are beyond their natural range of movements **A<sub>2</sub>**

#### 4 List of significant hazards

For the purposes of this European Standard, Table 1 gives, for defined danger zones, all the significant hazards, the significant hazardous situations and events covered by this European Standard, that have been identified by risk assessment as being significant for this type of machine, and which require specific action to eliminate or to reduce the risk

The attention is drawn to the necessity to verify that the safety requirements specified in this European Standard apply to each significant hazard presented by a given machine and to validate that the risk assessment is complete with particular attention to:

- the intended use of the machine including maintenance, setting and cleaning and its reasonably foreseeable misuse;
- the identification of all significant hazards associated with the machine.

**Table 1 — List of significant hazards associated with hand-held integrally powered garden vacuums and garden blower/vacuums with or without shredding means and garden blowers**

Ref. N <sup>o</sup> .	Hazard	Location or event	Reference of this European Standard
<b>Hazards, hazardous situations and hazardous events</b>			
<b>1</b>	<b>Mechanical hazards due to</b>		
1.1	Inadequacy of mechanical strength	Ejection of sucked up parts or broken parts through fan housing Weakening fan housing by overheating of motor compartment	5.4, 5.5,
1.2	Shearing, cutting, severing, entanglement, drawing-in or trapping hazard	Contact with shredding means or fan	5.1, 5.6.1, 6.1, 6.2, 6.3 and Annex C
<b>2</b>	<b>Electrical hazards due to:</b>		
2.1	Contact with live parts under high voltage	Contact with HT ignition parts	5.11.2
<b>3</b>	<b>Thermal hazards, resulting in:</b>		
3.1	Burns, scalds and other injuries by a possible contact of persons with objects or materials with an extreme high or low temperature, by flames or explosions and also by the radiation of heat sources	Contact with cylinder or exhaust pipe	5.3
<b>4</b>	<b>Hazards generated by noise, resulting in:</b>		
4.1	Hearing loss (deafness), other physiological disorders (e.g. loss of balance, loss of awareness)  Interference with speech, communication and warning signals.	Noise emitted by the machine  Operator not being aware of surrounding or not noticing important information	5.8, 6.1, 6.2, 6.3 and Annex A
<b>5</b>	<b>Hazards generated by vibration</b>		

Ref. Nr.	Hazard	Location or event	Reference of this European Standard
5.1	Use of hand-held machines resulting in a variety of neurological and vascular disorders	Vibrations transmitted by the machine	5.9, 6.1 and Annex B
<b>6</b>	<b>Hazards generated by materials and substances</b> (and their constituent elements) used by the machinery		
6.1	Hazards from contact with or inhalation of harmful fluids, gases, mists, fumes, and dusts	Contact with fuel Inhalation of exhaust fumes	5.10
6.2	Fire or explosion hazard	Fuel coming into contact with hot parts	5.11
<b>7</b>	<b>Hazards requiring application of ergonomic principles in machinery design</b> from:		
7.1	Unhealthy postures or excessive effort	Heavy and voluminous machines	5.6.3, 5.13.2 and 6.1
7.2	Inadequate consideration of hand-arm or foot-leg anatomy	Handling of machine and position of handgrips	5.6.2
7.3	Neglected use of personal protective equipment	Ejection of particles from the discharge opening of the machine Hot parts of the machine Noise emitted from the machine	6.1 and Annex C
7.4	Inadequate design, location or identification of manual controls	Handgrips and throttle setting device	5.6.1, 6.2
<b>8</b>	<b>Unexpected start-up, unexpected over-run/over-speed</b> from:		
8.1	Errors made by the operator (due to mismatch of machinery with human characteristics and abilities)	Use of a machine without a harness	6.1
<b>9</b>	<b>Break-up during operation</b>	Broken fan and/or shredding means	5.5
<b>10</b>	<b>Ejected objects</b>	Objects ejected from the discharge opening of the machine	5.5

## 5 Safety requirements and/or protective measures

### 5.1 General

The machine shall comply with the safety requirements and/or protective measures of this Clause.

In addition, the machine shall be designed according to the principles of EN ISO 12100 for relevant but not significant hazards, which are not dealt with by this document (e.g. sharp edges of the machine frame).

**NOTE** For guidance in connection with risk reduction by design, see 6.2 of EN ISO 12100:2010 and for safeguarding measures, see 6.3 of EN ISO 12100:2010.