SLOVENSKI STANDARD
SIST EN 50434:2015

01-april-2015

Varnost električnih gospodinjskih in podobnih aparatov - Posebne zahteve za omrežno napajane drobilnike in sekalnike

Safety of household and similar appliances - Particular requirements for mains operated shredders and chippers

Sicherheit elektrischer Geräte für den Hausgebrauch und ähnliche Zwecke - Besondere Anforderungen für netzbetriebene Schredder, Häcksler und Zerkleinerer

Sécurité des appareils électrodomestiques et analogues - Règles particulières pour les broyeurs et déchiqueteurs fonctionnant sur le réseau

Ta slovenski standard je istoveten z: **EN 50434:2014**

ICS:

65.060.70	Vrtnarska oprema	Horticultural equipment

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English Version

Safety of household and similar appliances - Particular requirements for mains operated shredders and chippers

Sécurité des appareils électrodomestiques et analogues - Règles particulières pour les broyeurs et déchiqueteurs fonctionnant sur le réseau

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
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Foreword

This document (EN 50434:2014) has been prepared by WG 5, "Gardening appliances", of the Technical Committee CENELEC 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) 2015-03-31
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2017-03-31

EN 50434:2014 includes the following significant technical changes:

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

– alignment to EN 60335-1:2012.

This European Standard 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 European Standard supplements or modifies the corresponding clauses in Part 1, so as to convert that publication into the European Standard "*Safety requirements for* ***shredders/chippers***".

Where a particular subclause of Part 1 is not mentioned in this standard, 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 European Standard 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.

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.

The following numbering system is used:

– subclauses 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.

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.

1 Scope

Replacement:

This European Standard specifies safety requirements and their verification for the design and construction of hand fed, **shredders/chippers** with integral electric motor, not exceeding 250 V single phase, with or without vacuum assisted collection which are designed to reduce organic material to smaller pieces and are used in a stationary position by an operator standing on the ground. This standard applies to **shredders/chippers** with **feed intake openings** or segments, in this standard referred to as **feed safety openings** that in total will fit into a square of 250 mm x 250 mm.

NOTE For the requirements for the measurement of the square of 250 mm x 250 mm are given in clause 20.101.1 of this standard.

In this European Standard **shredders** and **chippers** are referred to collectively as machine(s).

This European Standard does not cover requirements for

– machines powered by combustion engines;

NOTE 1 Combustion engine driven machines are covered by EN 13683.

– machines driven by an external power source or by battery power;

– machines with powered discharge intended to broadcast material or load vehicles;

– machines with mechanically powered feed intake or attachments;

– wood chippers for agricultural, lawn and park and forestry use;

NOTE 2 Wood chippers are covered by EN 13525.

– machines powered from a 3 phase supply.

This European Standard deals with all significant hazards presented by **shredders/chippers** when they are used as intended and under conditions of misuse which are reasonably foreseeable.

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

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

2 Normative references

This clause of Part 1 is applicable except as follows:

Addition:

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

3 Terms and definitions

This clause of Part 1 is applicable except as follows:

3.1.9 *Replacement:*

3.1.9
normal operation
any use of the machine which is specified by the manufacturer, and which is consistent with such activities as reducing organic material, starting, and stopping

Addition:

3.101
discharge chute
extension of the opening through which the shredded or chipped material is discharged

3.102
discharge zone
any space wherein material is intended to be ejected from the machine

3.103
feed safety opening
opening through which material is passed located at the relevant safety distance from the **shredding means**. This may be the same as the **feed intake opening** in Clause 3.104 or at some point between the **feed intake opening** and the **shredding means**

3.104
feed intake opening
opening through which material is inserted to be fed to the cutting mechanism. A **feed intake opening** can become **feed safety opening**(s) if the relevant safety distance from the **shredding means** is met

3.105
normal use
normal operation, plus routine maintenance, servicing, cleaning, transporting, attaching or removing accessories, and making adjustments as determined by the manufacturer's instructions

3.106
material discharge deflector
fixed or movable component designed to direct the flow of processed material discharging from the machine

3.107
maximum operating speed
highest **power source** speed obtainable with the **shredding means** engaged

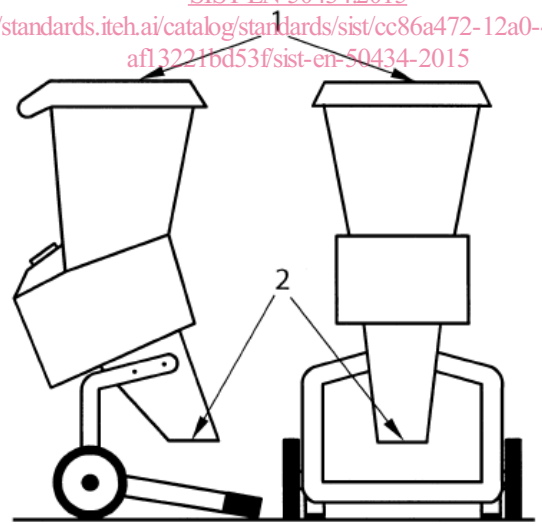
3.108
operator presence control
control designed so that it will automatically interrupt power to a drive when the operator's actuating force is removed

3.109
power source
motor which provides linear or rotational movement

3.110
screen (grid)
perforated piece or bar(s) located between the **shredding means** and **discharge chute** or opening of the machine to assist in reducing organic materials to smaller pieces

3.111
shredder/chipper
machine designed for use in a stationary position having a **shredding means** for the purpose of reducing organic materials to smaller pieces. See Figures 1a) and 1b)

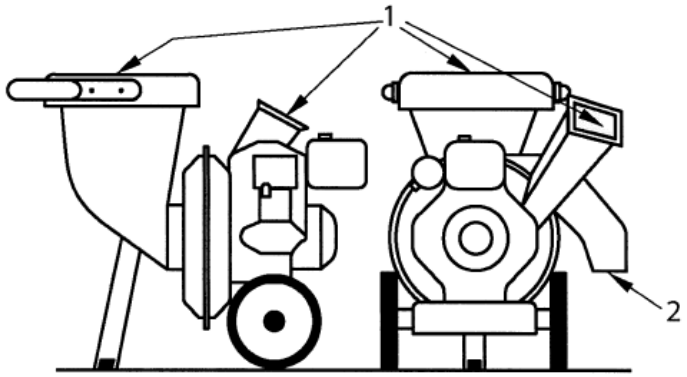
3.112
shredding means
mechanism consisting of one or more cutting means with or without a **screen (grid)**, designed to reduce the size of organic material to smaller pieces



a)

Key

1 feed intake opening
2 **discharge chute**



b)

Key

1 feed intake opening
2 **discharge chute**

Figure 1 - Examples of typical shredders/chippers

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:

5.2 *Addition:*

A new machine shall be used for each of the tests of Clause 21.

6 Classification

This clause of Part 1 is applicable except as follows:

6.1 *Replacement:*

The machines shall be one of the following classes with respect to protection against electric shock: class I or class II.

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:*

Add the following new indents:

- 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 “shredders” or “chipper” 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.
- machines operated continuously shall be marked with rated power in Watts or rated current in Amperes;
- machines rated intermittently according to 11.5 shall be marked with rated power in Watts or rated current in Amperes and the duty cycle in parenthesis (P40). This shall be explained in the instruction manual;

  NOTE 4 As an example 1 800 W (P40).
- 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 and/or on/off switch) when operated shall be marked or so placed as to indicate clearly which part of the machine they control;
- where replaceable during normal use, the shredding means shall be marked to identify the part number(s) and the manufacturer, importer or supplier;
- when a guard or container is so positioned or shaped that it could be misused as a step, there shall be a warning marking “Do not us as a step” or an equivalent safety sign, an example is given in Figure AA.9.

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. Markings or symbols giving cautionary information shall be located close to the hazard:

- DANGER - Rotating blades. Keep hands and feet out of openings while machine is running;
- Read the user instructions;

– Keep bystanders away;

– WARNING Switch off and remove plug from mains before adjusting, cleaning or if the cord is damaged.

As appropriate to the machine design:

– Wear eye and/or ear protection;

– Wait until all machine components have completely stopped before touching them.

Compliance shall be checked by inspection.

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, Clause 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;

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 Clause 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) an explanation of the term (P40) if applicable;

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

- the A- weighted emission sound pressure level emitted by the machinery, where this exceeds 70 dB(A), where this level does not exceed 70 dB(A), this fact shall be indicated.
- the peak C-weighted instantaneous sound pressure value at machinery, where this exceeds 63 Pa (130 dB in relation to 20 µPa);
- the A-weighted sound power level emitted by the machinery, if the A-weighted emission sound pressure level exceeds 80 dB(A)
- the uncertainties surrounding the determined noise emission values according to Annex FF.

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

cc) mass in kilograms.

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.

8 Protection against access to live parts

This clause of Part 1 is applicable.

9 Starting of motor-operated appliances

Motors shall start under all normal voltage conditions that may occur in use.

Centrifugal and other automatic starting switches shall operate reliably and without contact chattering.

Compliance is checked by starting the machine three times, at no load, at a voltage equal to 0,85 times rated voltage or the lower limit of the rated voltage range, with any control device set at maximum speed.

For the test the shredding means shall be adjusted according to the instruction manual.

The machine shall operate in such a way that safety is not affected.

10 Power input and current

This clause of Part 1 is not applicable.

11 Heating

This clause of Part 1 is applicable.

11.5 *Replacement:*

Machines shall be tested according to their marking. If the machine is marked with rated power input or rated current followed by the term (P40) it shall be operated intermittently. All other machines shall be tested continuously.

Machines marked (P40) are operated intermittently until stabilization or for 30 cycles, whichever is achieved first, each cycle comprising a period of operation of 40 s at rated power **input** and a period of 60 s with the machine at no load. The temperature is measured at the end of a load period.

All other machines are operated continuously. The temperature is measured when the machine has reached stabilization.

The machine is loaded by means of a brake adjuster so as to attain rated input or rated current.

The machine shall be operated at rated voltage and rated current or rated power **input** until stabilization. The torque being applied shall be measured. When tested by 0,94 and 1,06 times rated voltage the previously determined torque shall be maintained.

12 Void

13 Leakage current and electric strength at operating temperature

This clause of Part 1 is applicable.