

**Kummi- ja plastitöötlusmasinad.  
Peenestusmasinad. Osa 3: Ohutusnõuded  
hakkuritele KONSOLIDEERITUD TEKST**

Plastics and rubber machines - Size reduction  
machines - Part 3: Safety requirements for shredders  
CONSOLIDATED TEXT

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 12012-3:2001+A1:2008 sisaldab Euroopa standardi EN 12012-3:2001+A1:2008 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 27.10.2008 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 03.09.2008.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 12012-3:2001+A1:2008 consists of the English text of the European standard EN 12012-3:2001+A1:2008.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 27.10.2008 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text 03.09.2008.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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**Võtmesõnad:** no, occupational safety, operating conditions, plastics-working machinery, rolling machines, rubber machines, safety, safety design, safety engineering, safety measures, safety requirements, sound level, sound pressure level, user information, workplace safety

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Aru 10 Tallinn 10317 Eesti; [www.evs.ee](http://www.evs.ee); Telefon: 605 5050; E-post: [info@evs.ee](mailto:info@evs.ee)

English Version

**Plastics and rubber machines - Size reduction machines - Part  
3: Safety requirements for shredders**

Machines pour les matières plastiques et le caoutchouc -  
Machines à fragmenter - Partie 3: Prescriptions de sécurité  
relatives aux déchiqueteurs

Kunststoff- und Gummimaschinen -  
Zerkleinerungsmaschinen - Teil 3:  
Sicherheitsanforderungen für Walzenzerkleinerer

This European Standard was approved by CEN on 18 January 2001 and includes Amendment 1 approved by CEN on 8 June 2008.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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## Foreword

This document (EN 12012-3:2001+A1:2008) has been prepared by Technical Committee CEN/TC 145 "Plastics and rubber machines", the secretariat of which is held by UNI.

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 March 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.

This document includes Amendment 1, approved by CEN on 2008-06-08. The main changes compared to the previous version are:

- modification of the main element of the title
- editorial modification of Annex ZA
- addition of Annex ZB
- editorial changes of EN 292-1:1991 to EN ISO 12100-1:2003 and of EN 292-2:1991 to EN ISO 12100-2:2003 in the following clauses and sub-clauses: 2, 5, 7.1.1, Annex A, A.3.1
- minor changes of Foreword, sub-clause 7.2, second and third indents, Annex A, A.7, third indent.

This document supersedes EN 12012-3:2001.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1

This European standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EC Directives.

A1 For relationship with EU Directive(s), see informative Annexes ZA and ZB, which are integral parts of this document. A1

This is the third in a series of standards on the safety of size reduction machines.

— Part 1 deals with blade granulators;

— Part 2 deals with strand pelletisers.

Annex A is normative.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

## Introduction

This document is a type C standard as stated in EN 1070.

The machinery concerned and the extent to which hazards, hazardous situations and 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.

## 1 Scope

This standard specifies the essential safety requirements applicable to the design and construction of shredders used for plastic and rubber.

The machine begins with the outer edge of the feed hopper and ends with the discharge area.

This standard does not deal with equipment for feeding material or discharging shredded material.

This standard does not deal with safety measures to reduce the risk from ignition of flammable residues in material to be shredded

This standard does not deal with requirements for local exhaust ventilation systems.

Only the significant hazards listed in clause 4 and dealt with in clause 5 are subject to this standard.

**NOTE** Directive 94/9/EC concerning equipment and protective systems intended for use in potentially explosive atmospheres can be applicable to the type of machine or equipment covered by this European Standard. The present standard does not necessarily comply with Directive 94/9/EC. Additional safety requirements in a future revision of this standard may be necessary to satisfy Directive 94/9/EC.

This standard applies to machines which are manufactured after the date of approval of this standard by CEN.

## 2 Normative references

This European standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references subsequent amendments to or revisions of any of these publications apply to this European standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

**[A<sub>1</sub>]** *deleted text* **[A<sub>1</sub>]**

EN 294:1992, *Safety of Machinery - Safety distances to prevent danger zones being reached by the upper limbs*

EN 418:1992, *Safety of Machinery - Emergency stop equipment, functional aspects – Principles for design*

EN 626-1:1994, *Safety of Machinery - Reduction of risk to health from hazardous substances emitted by machinery – Part 1: Principles and specifications for machinery manufacturers*

- EN 953:1997, *Safety of Machinery - Guards - General requirements for the design and construction of fixed and movable guards*
- EN 954-1:1996, *Safety of Machinery - Safety related parts of control systems - Part 1: General principles for design*
- EN 999:1998, *Safety of machinery – The positioning of protective equipment in respect of approach speeds of parts of the human body*
- EN 1037:1995, *Safety of machinery - Prevention of unexpected start-up*
- EN 1070, *Safety of machinery - Terminology*
- EN 1088:1995, *Safety of Machinery - Interlocking devices associated with guards - Principles for design and selection*
- EN 50014, *Electrical apparatus for potentially explosive atmospheres – General requirements*
- EN 50015, *Electrical apparatus for potentially explosive atmospheres - Oil-immersion "o"*
- EN 50016, *Electrical apparatus for potentially explosive atmospheres - Pressurised apparatus "p"*
- EN 50017, *Electrical apparatus for potentially explosive atmospheres - Powder filling "q"*
- EN 50018, *Electrical apparatus for potentially explosive atmospheres - Flameproof enclosures "d"*
- EN 50019, *Electrical apparatus for potentially explosive atmospheres - Increased safety "e"*
- EN 50020, *Electrical apparatus for potentially explosive atmospheres - Intrinsic safety "i"*
- EN 60204-1:1997, *Safety of Machinery - Electrical equipment of machines - Part 1: General requirements (IEC 60204-1:1997)*
- EN 60529:1991, *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)*
- EN ISO 3741:1999, *Acoustics -Determination of sound power levels of noise sources using sound pressure - Precision methods for reverberation rooms (ISO 3741:1999)*
- EN ISO 3743-1:1995, *Acoustics - Determination of sound power levels of noise sources - Engineering methods for small movable sources in reverberant fields - Part 1: Comparison method for hard-walled test rooms (ISO 3743:1994)*
- EN ISO 3743-2:1996, *Acoustics - Determination of sound power levels of noise sources using sound pressure - Engineering methods for small movable sources in reverberant fields - Part 2: Methods for special reverberation test rooms (ISO 3743-2:1994)*
- EN ISO 3744:1995, *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 3746:1995, *Acoustics - Determination of sound power levels of noise sources using sound pressure - Survey method using an enveloping measurement surface over a reflecting plane (ISO 3746:1995)*
- EN ISO 3747:2000, *Acoustics - Determination of sound power levels of noise sources using sound pressure – comparison method for use in-situ (ISO 3747:2000)*
- EN ISO 4871:1996, *Acoustics - Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996)*

EN ISO 9614-1:1995, *Acoustics - Determination of sound power levels of noise sources using sound intensity - Part 1: Measurement at discrete points (ISO 9614-1:1993)*

EN ISO 9614-2:1996, *Acoustics - Determination of sound power levels of noise sources using sound intensity - Part 2: Measurement by scanning (ISO 9614-2:1996)*

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

EN ISO 11202:1995, *Acoustics - Noise emitted by machinery and equipment - Measurement of emission sound pressure levels at the work station and at other specified positions - Survey method in situ (ISO 11202:1995)*

EN ISO 11203:1995, *Acoustics - Noise emitted by machinery and equipment - Determination of emission sound pressure levels at the work station and at other specified positions from the sound power level (ISO 11203:1995)*

EN ISO 11204:1995, *Acoustics - Noise emitted by machinery and equipment - Measurement of emission sound pressure levels at the work station and at other specified positions - Method requiring environmental corrections (ISO 11204:1995)*

EN ISO 11688-1:1998, *Acoustics - Recommended practice for the design of low-noise machinery and equipment - Part 1: Planning (ISO/TR 11688-1:1995)*

EN ISO 12100-1:2003, *Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology (ISO 12100-1:2003)* <sup>A1</sup>

EN ISO 12100-2:2003, *Safety of machinery - Basic concepts, general principles for design - Part 2: Technical principles (ISO 12100-2:2003)* <sup>A1</sup>

ISO 3745:1977, *Acoustics - Determination of sound power levels of noise sources - Precision methods for anechoic and semi-anechoic rooms*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1070 and the following terms and definitions apply:

**3.1 shredder**  
machine with one or more low speed rotating shafts on which cutting tools are fitted which shred the material between the tools on the revolving shaft(s) or between the tools on one shaft and a stationary cutting tool

**3.2 shredding chamber**  
part of the machine where shredding takes place

**3.3 rotor**  
one or more rotating devices including the shaft(s), tools and/or cutting tools inside the shredding chamber

**3.4 stationary cutting tool**  
single or multiple tools fixed inside the shredding chamber