

**Kummi- ja plastitöötlusmasinad.  
Valtskambersegistid. Ohutusnõuded  
KONSOLIDEERITUD TEKST**

Plastics and rubber machines - Internal mixers - Safety requirements CONSOLIDATED TEXT

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 12013:2000+A1:2008 sisaldab Euroopa standardi EN 12013:2000+A1:2008 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 25.09.2008 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 06.08.2008.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 12013:2000+A1:2008 consists of the English text of the European standard EN 12013:2000+A1:2008.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 25.09.2008 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 06.08.2008.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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English Version

## Plastics and rubber machines - Internal mixers - Safety requirements

Machines pour les matières plastiques et le caoutchouc -  
Mélangeurs internes - Prescriptions de sécurité

Kunststoff- und Gummimaschinen - Innenmischer -  
Sicherheitsanforderungen

This European Standard was approved by CEN on 25 May 2000 and includes Amendment 1 approved by CEN on 8 June 2008.

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## Foreword

This document (EN 12013:2000+A1:2008) has been prepared by Technical Committee CEN/TC 145 "Plastics and rubber machines", the secretariat of which is held by UNI.

This document shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.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: Introduction, 2, 5, 5.1.8, 5.4, Table 1, 7.1.
- Minor changes in clause: Foreword, 7th paragraph and in sub-clauses: 7.1.4, third indent; 7.2, second and third indents.

This document supersedes EN 12013:2000.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** and **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 EU Directive(s).

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

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 European standard is a type C Standard as defined in **EN ISO 12100** and has been elaborated by CEN/TC 145/WG7.

The extent to which hazards are covered is indicated in the scope of this standard. In addition, machinery shall comply as appropriate with **EN ISO 12100** for hazards which are not covered by this standard.

## 1 Scope

This standard applies to internal mixers for rubber and plastics as defined in 3.1. The safety requirements and/or measures specified in this standard apply to all internal mixers irrespective of their size and irrespective of the control modes of the hopper front door and discharge door.

The safety requirements for the design of exhaust systems and ancillary equipment are not covered by this standard.

The safety requirements for the interaction between internal mixers and ancillary equipment are specified.

This standard covers the significant hazards listed in Clause 4.

This standard is not applicable to internal mixers which are manufactured before the date of publication of this standard by CEN.

## 2 Normative references

This European standard incorporates provisions from other publications by dated or undated references. These normative references are cited at the appropriate places in the text and the publications are listed below. For dated references, subsequent amendments or revisions of these publications apply to the 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).

**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 563, Safety of Machinery - Temperatures of touchable surfaces - Ergonomics data to establish temperature limit values for hot surfaces**

**EN 574:1996, Safety of Machinery - Two-hand control devices - Functional aspects - Principles for design**

**EN 811, Safety of Machinery - Safety distances to prevent danger zones being reached by the lower limbs**

**EN 953:1997, Safety of Machinery - Guards - General requirements for the design and construction of fixed and moveable guards**

**EN 954-1:1996, Safety of Machinery - Safety-related parts of control systems - Part 1: General principles for design**

- EN 982, *Safety of Machinery - Safety requirements for fluid power systems and their components - Hydraulics*
- EN 983, *Safety of Machinery - Safety requirements for fluid power systems and their components - Pneumatics*
- EN 999, *Safety of Machinery - The positioning of protective equipment in respect of approach speeds of parts of the human body*
- EN 1037, *Safety of Machinery - Prevention of unexpected start-up*
- EN 1088:1995, *Safety of Machinery - Interlocking devices associated with guards - Principles for design and selection*
- EN 1127-1, *Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology*
- EN 60079-14, *Electrical apparatus for explosive gas atmospheres - Part 14: Electrical installations in hazardous areas (other than mines) (IEC 60079-14:1996)*
- EN 60204-1:1997, *Safety of Machinery - Electrical equipment of machines - Part 1: General requirements (IEC 60204-1:1997)*
- prEN 60204-11:1998, *Safety of machinery - Electrical equipment of machines - Part 11: General requirements for voltages above 1000 V a.c. or 1500 V d.c. and not exceeding 36 kV*
- EN 60529:1991, *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)*
- EN 61310-1, *Safety of Machinery - Indication, marking and actuation - Part 1: Requirements for visual, auditory and tactile signals (IEC 61310-1:1995)*
- EN ISO 4871, *Acoustics - Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996)*
- EN ISO 11202, *Acoustics - Noise emitted by machinery and equipment – Measurement of emission sound pressure levels at a work station and at other specified positions - Survey method in situ (ISO 11202:1995)*
- EN ISO 11688-1, *Acoustics - Recommended practice for the design of low-noise machinery and equipment - Part 1: Planning (ISO/TR 11688-1:1995)*
- EN ISO 11688-2, *Acoustics - Recommended practice for the design of low-noise machinery and equipment - Part 2: Introduction to the physics of low-noise design (ISO/TR 11688-2:1998)* <sup>A1</sup>
- EN ISO 12100-1:2003, *Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology (ISO 12100-1:2003)*
- 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>
- EN ISO 14122-1, *Safety of machinery - Permanent means of access to machinery - Part 1: Choice of fixed means of access between two levels (ISO 14122-1:2001)*
- EN ISO 14122-2, *Safety of machinery - Permanent means of access to machinery - Part 2: Working platforms and walkways (ISO 14122-2:2001)*
- EN ISO 14122-3, *Safety of machinery - Permanent means of access to machinery - Part 3: Stairs, stepladders and guard-rails (ISO 14122-3:2001)*
- EN ISO 14122-4, *Safety of machinery - Permanent means of access to machinery - Part 4: Fixed ladders (ISO 14122-4:2004)* <sup>A1</sup>

CENELEC Report R-044-001, *Safety of Machinery - Guidance and recommendations for the avoidance of hazards due to static electricity*

### 3 Definitions

For the purposes of this standard the following definitions apply:

#### 3.1

##### **internal mixer**

A mixing machine for the discontinuous production of rubber or plastic compounds. Its main parts are (Figure 1):

- two counter rotating horizontal rotors (a) within a mixing chamber (b);
- a feed hopper (c) with several openings:-
  - at the feed side, a feed opening equipped with a door (hopper front door) (d);
  - at the side opposite to the feed side, an inspection/access opening (hopper rear opening) equipped with a fixed or moveable guard (hopper rear door) (e);
  - possible additional feed openings for connection to feeding ducts (f);
- a floating weight which applies pressure to the materials to be mixed (g);
- a drop type or sliding type discharge door (h).