

**Kummi- ja plastitöötlusimasinad. Reaktsioon-
vormimismasinad. Osa 2: Reaktsioon-
vormimismasinate ohutusnõuded
KONSOLIDEERITUD TEKST**

Plastics and rubber machines - Reaction moulding
machines - Part 2: Safety requirements for reaction
moulding plant CONSOLIDATED TEXT

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 1612-2:2000+A1:2008 sisaldab Euroopa standardi EN 1612-2:2000+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 13.08.2008.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 1612-2:2000+A1:2008 consists of the English text of the European standard EN 1612-2:2000+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 13.08.2008.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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English Version

**Plastics and rubber machines - Reaction moulding machines -
Part 2: Safety requirements for reaction moulding plant**

Machines pour les matières plastiques et le caoutchouc -
Machines de moulage par réaction - Partie 2: Prescriptions
de sécurité relatives aux installations de moulage par
réaction

Kunststoff- und Gummimaschinen -
Reaktionsgießmaschinen - Teil 2:
Sicherheitsanforderungen an Reaktionsgießanlagen

This European Standard was approved by CEN on 23 April 1999 and includes Amendment 1 approved by CEN on 15 June 2008.

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Foreword

This document (EN 1612-2:2000+A1:2008) has been prepared by Technical Committee CEN/TC 145 "Plastics and rubber machines", the secretariat of which is held by UNI.

This 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of an identical text or by endorsement, at the latest by February 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.

This document includes Amendment 1, approved by CEN on 2008-06-15.

A1 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, 5.1.1;
- updating of prEN 999 to EN 999;
- minor changes in the Foreword, new 7th paragraph. **A1**

This document supersedes EN 1612-2:2000.

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 EU Directive(s).

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

This standard deals with metering and mixing units.

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**.

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 covers the essential health and safety requirements for the design of reaction moulding plant with the exception of metering and mixing units (for these see part 1).

The significant and specific hazards are listed in clause 4 and are dealt with in this standard.

This standard does not cover completely the hazards arising from the use of highly flammable additives, for example pentane used as a blowing agent (see 4.3), because these hazards depend to a large extent on the additives and process used.

This standard does not cover the hazards due to noise generated by the cutting unit, which is the only significant source of noise at such plant.

This standard does not cover the requirements for the design of exhaust systems.

This standard does not cover the hazards arising from the assembly of separate units not supplied at the same time by the same manufacturer.

This standard applies to reaction moulding plant manufactured after the date of publication of 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 is not intended to provide means of complying with the essential health and safety requirements of Directive 94/9/EC.

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 this European standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

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

EN 349:1993, Safety of Machinery - Minimum gaps to avoid crushing of parts of the human body

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

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

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 A1, *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 1088:1995, *Safety of Machinery - Interlocking devices associated with guards - Principles for design and selection*

EN 1127-1:1997, *Explosive atmospheres – Explosion prevention and protection – Part 1: Basic concepts and methodology*

EN 1612-1:1997, *Rubber and plastics machines - Reaction moulding machines - Part 1: Safety requirements for metering and mixing units*

EN 1760, *Safety of machinery - Pressure sensitive protective devices*

EN 60079-10:1996, *Electrical apparatus for explosive gas atmospheres - Classification of hazardous areas*

EN 60079-14:1997, *Electrical apparatus for explosive gas atmospheres – Electrical installations in hazardous areas (other than mines)*

EN 60204-1:1997, *Safety of Machinery - Electrical equipment of machines - Part 1: General requirements*

EN 60529:1991, *Degrees of protection provided by enclosures (IP code)*

EN 61496-1:1997, *Safety of Machinery – Electro-sensitive protective equipment - Part 1: General requirements and tests*

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)* A1

3 Terms and definitions

For the purposes of this standard, the following definitions apply:

3.1

reaction moulding plant

a complex installation for reaction moulding which consists of one or more metering and mixing units (see part 1), moulding equipment and ancillary equipment.

3.1.1

continuous moulding equipment

equipment for continuous moulding of semi-finished products which may be for example slabs, blocks or continuous sandwich composites (see figures 1 and 2)

3.1.2

moulding equipment for individual components

Equipment for production of individual components. This may be: