

# **SLOVENSKI STANDARD**

## **oSIST prEN 1612:2016**

**01-februar-2016**

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### **Stroji za predelavo gume in plastike - Stroji in naprave za tlačno litje - Varnostne zahteve**

Plastics and rubber machines - Reaction moulding machines and plants - Safety requirements

Kunststoff- und Gummimaschinen - Reaktionsgießmaschinen - Teil 1:  
Sicherheitsanforderungen an Misch- und Dosiereinheiten

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**Ta slovenski standard je istoveten z: prEN 1612**

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#### **ICS:**

83.200

Oprema za gumarsko  
industrijo in industrijo  
polimernih materialov

Equipment for the rubber and  
plastics industries

**oSIST prEN 1612:2016**

**en**



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**DRAFT**  
**prEN 1612**

December 2015

ICS 83.200

Will supersede EN 1612-1:1997+A1:2008

English Version

**Plastics and rubber machines - Reaction moulding  
machines and plants - Safety requirements**

Kunststoff- und Gummimaschinen -  
Reaktionsgießmaschinen - Teil 1:  
Sicherheitsanforderungen an Misch- und  
Dosiereinheiten

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 145.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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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**

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## European foreword

This document (prEN 1612:2015) has been prepared by Technical Committee CEN/TC 145 “Plastics and rubber machines”, the secretariat of which is held by UNI.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 1612-1:1997+A1:2008.

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.

For relationship with EU Directive, see informative Annex ZA, which is an integral part of this document.

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## 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 are indicated in the scope of this draft European Standard (Clause 1).

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 draft European standard specifies the essential safety requirements applicable to the design and construction of reaction moulding machines and plants.

The significant and specific hazards are listed in Annex A and are dealt with in this draft European standard.

This draft European standard does not cover the hazards related to the cutting unit (see EN 14886:2008).

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

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

This draft European standard applies to reaction moulding machines and plants manufactured after its date of publication.

Reaction moulding machines usually do not produce explosive atmospheres. Where materials are processed, which may cause an explosive atmosphere, the Directive 94/9/EC on the Equipment intended for use in Potentially Explosive Atmospheres (ATEX) should be applied. Explosion hazards are not dealt with in this document.

## 2 Normative references

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.

EN 574:1996+A1:2008, *Safety of machinery — Two-hand control devices — Functional aspects — Principles for design*

EN 614-1:2006+A1:2009, *Safety of machinery — Ergonomic design principles — Part 1: Terminology and general principles*

EN 614-2:2000+A1:2008, *Safety of machinery — Ergonomic design principles — Part 2: Interactions between the design of machinery and work tasks*

EN 953:1997+A1:2009, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards*

EN 60204-1:2006, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2005, modified)*

EN 61496-1:2013, *Safety of machinery — Electro-sensitive protective equipment — Part 1: General requirements and tests (IEC 61496-1:2012)*

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 3746:2010, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Survey method using an enveloping measurement surface over a reflecting plane (ISO 3746:2010)*



EN ISO 4413:2010, *Hydraulic fluid power — General rules and safety requirements for systems and their components (ISO 4413:2010)*

EN ISO 4414:2010, *Pneumatic fluid power — General rules and safety requirements for systems and their components (ISO 4414:2010)*

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

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 11201:2010, *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 11202:2010, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions applying approximate environmental corrections (ISO 11202:2010)*

EN ISO 11204:2010, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions applying accurate environmental corrections (ISO 11204:2010)*

EN ISO 11688-1:2009, *Acoustics — Recommended practice for the design of low-noise machinery and equipment — Part 1: Planning (ISO/TR 11688-1:1995)*

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

EN ISO 13732-1:2008, *Ergonomics of the thermal environment — Methods for the assessment of human responses to contact with surfaces — Part 1: Hot surfaces (ISO 13732-1:2006)*

EN ISO 13849-1:2008, *Safety of machinery — Safety-related parts of control system — Part 1: General principles for design (ISO 13849-1:2006)*

EN ISO 13850:2008, *Safety of machinery — Emergency stop — Principles for design (ISO 13850:2006)*

EN ISO 13855:2010, *Safety of machinery — Positioning of safeguards with respect to the approach speeds of parts of the human body (ISO 13855:2010)*

EN ISO 13856-1:2013, *Safety of machinery — Pressure-sensitive protective devices — Part 1: General principles for design and testing of pressure-sensitive mats and pressure-sensitive floors (ISO 13856-1:2013)*

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

For the purposes of this document, the terms and definitions given in EN ISO 12100:2010 and the following apply.

## prEN 1612:2015 (E)

## 3.1

**working tank**

tank which is part of the metering and mixing unit and contains one of the components

## 3.2

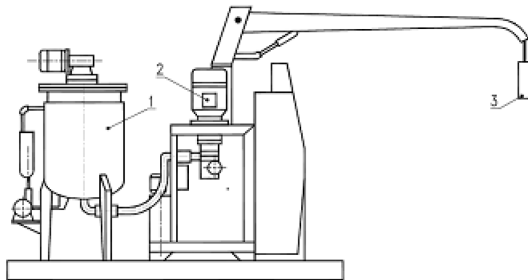
**metering unit**

unit for metering the components

## 3.3

**mixing head**

part of the metering and mixing unit for mixing and delivery which can be manually operated or powered

**Key**

- 1 working tank
- 2 metering unit
- 3 mixing head

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**Figure 1 — Example of a metering and mixing unit**

## 3.4

**components**

chemical and mineral components that need to be mixed in the process to produce the final product

## 3.5

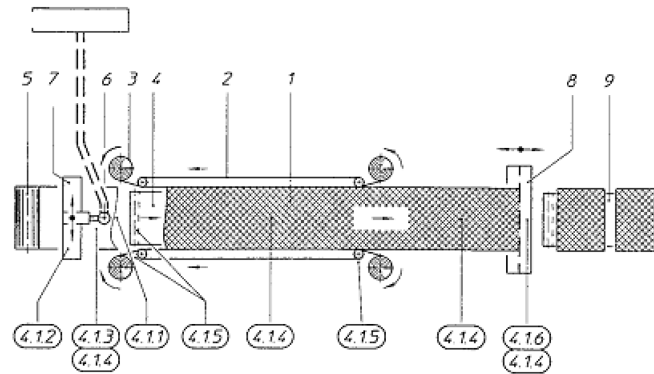
**reaction moulding plant**

complex installation for reaction moulding which consists of one or more metering, mixing units, moulding equipment

## 3.6

**continuous moulding equipment**

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



### Key

- 1 product
- 2 side wall of moulding equipment
- 3 equipment for feeding side cover sheet
- 4 moulding equipment lower cover sheet
- 5 equipment for feeding lower cover sheet
- 6 mixing head
- 7 equipment for manipulating mixing head
- 8 cutting unit
- 9 equipment for delivery of cut product

**Figure 2 — Continuous moulding equipment**

### 3.7

#### **moulding equipment for individual components**

equipment for production of individual components

Note 1 to entry: This may be:

- fixed moulding equipment with a fixed/movable mixing head (see Figure 3);
- mobile moulding equipment with a fixed/movable mixing head (see Figure 4):