

## **Pakkemasinate ohutus. Osa 3: Vormi-, täite- ja sulgemismasinad**

Safety of packaging machines - Part 3: Form, fill and  
seal machines

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 415-3:2000 sisaldab Euroopa standardi EN 415-3:1999 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 16.06.2000 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 415-3:2000 consists of the English text of the European standard EN 415-3:1999.</p> <p>This document is endorsed on 16.06.2000 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b></p> <p>This European standard establishes safety requirements for form, fill and seal packaging machines and the filling machines which are particularly associated with them. This group of machines is defined in detail in clause 3 of this standard, with diagrams illustrating examples of the principle of operation of each machine type.</p>	<p><b>Scope:</b></p> <p>This European standard establishes safety requirements for form, fill and seal packaging machines and the filling machines which are particularly associated with them. This group of machines is defined in detail in clause 3 of this standard, with diagrams illustrating examples of the principle of operation of each machine type.</p>
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ICS 55.200

Võtmesõnad:

ICS 55.200

**English version**

**Safety of packaging machines**

**Part 3: Form, fill and seal machines**

Sécurité des machines d'emballage –  
Partie 3: Machines d'emballage à  
former, remplir et sceller

Sicherheit von Verpackungs-  
maschinen – Teil 3: Form-, Füll- und  
Verschließmaschinen

This European Standard was approved by CEN on 1998-12-26.

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 Central Secretariat or to any CEN member.

The European Standards exist 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

**CEN**

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

**Central Secretariat: rue de Stassart 36, B-1050 Brussels**

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## Foreword

This European Standard has been prepared by Technical Committee CEN/TC 146 "Packaging machines - Safety", 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 June 2000, and conflicting national standards shall be withdrawn at the latest by June 2000.

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).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this standard.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Other parts of this standard include:

EN 415 Safety of packaging machines;

Part 1: Terminology and classification of packaging machines and associated equipment;

Part 2: Pre-formed rigid container packaging machines;

Part 4: Palletisers and depalletisers.

## 0 Introduction

Form, fill and seal machines are used extensively in Europe, in an increasingly wide range of industries. They contain many hazards and have the potential to cause serious injury.

The extent to which hazards are covered is indicated in the scope and clause 4 of this standard. In addition, machines should comply as appropriate with EN 292-1 and EN 292-2 for hazards which are not covered by this standard.

## 1 Scope

This European Standard establishes safety requirements for form, fill and seal packaging machines and the filling machines which are particularly associated with them. This group of machines is defined in detail in clause 3 of this standard, with diagrams illustrating examples of the principle of operation of each machine type.

However briefly, this standard covers the following broad groups of machines:

- horizontal form, fill and seal machines;
- vertical form, fill and seal machines;

- pre-made bag erect fill and seal machines;
- mandrel flexible package or carton form, fill and seal machines;
- carton erect, fill and close machines;
- thermoform, fill and seal machines.

Filling machines commonly fitted to form, fill and seal machines including:

- auger fillers;
- volumetric cup fillers;
- volumetric piston fillers;
- counters;
- gravimetric fillers (weighers).

This standard covers the safety requirements for machine design, construction, installation, commissioning, operation, adjustment, maintenance and cleaning. This part of prEN 415 applies primarily to machines manufactured after the date of issue of this standard.

This standard does not cover in detail the safety or hygiene hazards associated with the products which may be handled on form, fill and seal machines, but does include general advice.

This standard does not cover thermoforming machines. These machines are covered in prEN 12409.

This standard does not cover blow mould, fill and seal machines. The main hazards and safety requirements for these machines are described in EN 422.

## 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.

EN 292-1:1991	Safety of machinery – Basic concepts, general principles for design - Part 1: Basic terminology, methodology
EN 292-2:1991	Safety of machinery – Basic concepts, general principles for design - Part 2: Technical principles and specifications
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 prevent crushing of parts of the human body
EN 415-1:1999	Safety of packaging machines - Part 1: Terminology and classification of packaging machines and associated equipment
EN 418:1992	Safety of machinery; Emergency stop equipment; functional aspects - Principles for design
EN 422:1995	Rubber and plastics machines – Safety - Blow moulding machines intended for the production of hollow articles – Requirements for the design and construction



EN 457:1992	Safety of machinery - Auditory danger signals - General requirements design
EN 563:1994	Safety of machinery - Temperatures of touchable surfaces - Ergonomics data to establish temperature limit values for hot surfaces
EN 614-1:1995	Safety of machinery - Ergonomic design principles - Part 1: Terminology and general principles
prEN 614-2	Safety of machinery - Ergonomic design principles - Part 2 : Interaction between the design of machinery and work tasks
EN 626-1:1994	Safety of machinery - Reduction of risks to health from hazardous substances emitted by machinery - Part 1: Principles and specifications for machinery manufacturers
EN 811:1996	Safety of Machinery - Safety distances to prevent danger zones being reached by the lower limbs
EN 842:1996	Safety of machinery - Visual danger signals - General requirements, design and testing
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 982:1996	Safety of machinery - Safety requirements for fluid power systems and components – Hydraulics
EN 983:1996	Safety of machinery - Safety requirements for fluid power systems and components - Pneumatics
EN 1037:1995	Safety of Machinery; Prevention of unexpected start-up
EN 1050:1996	Safety of machinery - Principles for risk assessment
EN 1070:1998	Safety of machinery; Terminology
EN 1088:1995	Safety of machinery - Interlocking devices associated with guards - Principles for design and selection
EN 1672-2:1997	Food processing machinery - Basic concepts – Part 2: Hygiene requirements
prEN 1760-2	Safety of machinery - Pressure sensitive protective devices - Part 2: General principles for the design and testing of pressure sensing edges and pressure sensitive bars
prEN 12409	Rubber and plastics machines - Thermoforming machines - Safety requirements
EN 60204-1:1992	Safety of machinery - Electrical equipment of machines - Part 1: Specification for general requirements
EN 60204-3-1:1992	Machines - Part 3: Particular safety requirements for sewing machines units and systems.
EN 60529:1992	Specification for degrees of protection provided by enclosures (IP Code)
EN 61310-1:1995	Safety of machinery - Indication marking and actuation; Part 1: Requirements for visual, auditory and tactile signals.
EN 61310-2:1995	Safety of machinery - Indication marking and actuation; Part 2: Requirements for marking.
EN 61496-1:1997	Safety of machinery - Electrosensitive protective equipment - Part 1: General requirements and test
prEN 61496-2	Safety of machinery - Electrosensitive protection equipment - Part 2: Photo-electric devices

prEN 61496-3	Electrosensitive protection devices - Part 3: Proximity sensing devices
ISO/CD 14159	Safety of machinery; Hygiene design requirements for machines.
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)

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