

**Pakkemasinate ohutus. Osa 5: Pakendamismasinad
KONSOLIDEERITUD TEKST**

Safety of packaging machines - Part 5: Wrapping machines
CONSOLIDATED TEXT

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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English Version

Safety of packaging machines - Part 5: Wrapping machines

Sécurité des machines d'emballage - Partie 5 :
Fardeleuses/enveloppeuses

Sicherheit von Verpackungsmaschinen - Teil 5:
Einschlagmaschinen

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Foreword

This document (EN 415-5:2006+A1:2009) 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of an identical text or by endorsement, at the latest by May 2010, and conflicting national standards shall be withdrawn at the latest by May 2010.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document includes Amendment 1, approved by CEN on 2009-09-29.

This document supersedes EN 415-5:2006.

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

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(s).

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

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 3: Form, fill and seal machines

Part 4: Palletisers and depalletisers

Part 6: Pallet wrapping machines

Part 7: Group and secondary packaging machines

Part 8: Strapping machines

A1 Part 9: Noise measurement methods for packaging machines, packaging lines and associated equipment, grade of accuracy 2 and 3 **A1**

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Introduction

Wrapping machines are used extensively in Europe, in an increasingly wide range of industries.

They contain several significant hazards and have the potential to cause serious injury.

This document is a type C standard as defined in EN ISO 12100-1:2003.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this standard.

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.

1 Scope

This European Standard applies to the following groups of machines:

- wrapping machines which partially wrap products (see Figures 1-4)
- wrapping machines which form a complete wrap without sealing (see Figures 5-7)
- wrapping machines which form a complete wrap with sealing (see Figures 8-14)
- shrinking equipment which is connected to wrapping machines covered by this standard (see Figures 15-16)

The individual machines are described in 3.2 of this standard.

This European Standard deals with safety requirements for machine design, construction, installation, commissioning, operation, adjustment, maintenance and cleaning of wrapping machines.

The extent to which hazards, hazardous situations and events are covered are indicated in Clause 4 of this document.

Exclusions:

This standard is not applicable to larger examples of wrapping machines designed to handle products higher than 400 mm and wider than 400 mm. These machines are covered by EN 415-6.

This document is not applicable to wrapping machines which are manufactured before the date of publication of this document by CEN.

This standard does not consider the following hazards:

- Use of wrapping machines in potentially explosive atmospheres;
- Health, safety or hygiene hazards associated with the products that may be handled by the machines but does include general advice on this subject;
- Hazards that may be associated with electromagnetic emissions from wrapping machines;
- Hazards that may be associated with decommissioning wrapping machines.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

EN 415-1:2000, *Packaging machines safety – Part 1: Terminology and classification of packaging machines and associated equipment*

EN 418, *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 614-1:1995, *Safety of machinery - Ergonomic design principles – Part 1: Terminology and general principles*

EN 619, *Continuous handling equipment and systems – Safety and EMC requirements for equipment for mechanical handling of unit loads*

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

EN 626-2, *Safety of machinery - Reduction of risks to health from hazardous substances emitted by machinery – Part 2: Methodology leading to verification procedures*

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

EN 894-1, *Safety of machinery – Ergonomics requirements for the design of displays and control actuators – Part 1: General principles for human interactions with displays and control actuators*

EN 894-2, *Safety of machinery – Ergonomics requirements for the design of displays and control actuators – Part 2: Displays*

EN 894-3, *Safety of machinery – Ergonomics requirements for the design of displays and control actuators – Part 3: Control actuators*

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 their components - Hydraulics*

EN 983:1996, *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 1005-2, *Safety of machinery – Human physical performance – Part 2: Manual handling of machinery and components parts of machinery*

EN 1005-3, *Safety of machinery – Human physical performance – Part 3: Recommended force limits for machinery operation*

EN 1037, *Safety of machinery - Prevention of unexpected start-up*

EN 1050, *Safety of machinery - Principles for risk assessment*

EN 1088:1995, *Safety of machinery – Interlocking devices associated with guards - Principles for design and selection*

EN 1672-2:2005, *Food processing machinery - Basic concepts – Part 2: Hygiene requirements*

EN 1760-2, *Safety of machinery - Pressure sensitive protective devices – Part 2: General principles for the design and testing of pressure sensitive edges and pressure sensitive bars*

EN 13478, *Safety of machinery - Fire prevention and protection*

EN 60204-1:1997, *Safety of machinery - Electrical equipment of machines – Part 1: General requirements (IEC 60204-1:1997)*

EN 61310-1:1995, *Safety of machinery - Indication, marking and actuation – Part 1: Requirements for visual, auditory and tactile signals (IEC 61310-1:1995)*

EN 61310-3, *Safety of machinery - Indication, marking and actuation – Part 3: Requirements for the location and operation of actuators (IEC 61310-3:1999)*

EN 61496-1:2004, *Safety of machinery - Electro-sensitive protective equipment – Part 1: General requirements and tests (IEC 61496-1:2004, modified)*

EN 62061, *Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems (IEC 62061:2005)*

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 9614-2:1996, *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 a 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 a work station and at other specified positions - Survey method in situ (ISO 11202:1995)*

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

EN ISO 12001:1996, *Acoustics - Noise emitted by machinery and equipment - Rules for the drafting and presentation of a noise test code (ISO 12001:1996)*

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)*

EN ISO 14122-1:2001, *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)*

ISO 7000, *Graphical symbols for use on equipment – Index and synopsis*

IEC 60417:2002, *Graphical symbols for use on equipment*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in Clause 3 of EN ISO 12100-1:2003, EN 415-1:2000 and the following apply.

3.1 Definition of terms

3.1.1

band

strip of packaging material

3.1.2

cold adhesive

adhesive which is liquid at room temperature

3.1.3

deformable material

material which can be formed by the application of pressure only

3.1.4

change parts

machine parts designed to handle a specific product, packaging material or pack size or kind, that need to be changed when the machine is set up to handle a different product, packaging material or pack size or kind

3.1.5

film compensator

device which maintains tension in the film during the intermittent motion of the wrapping cycle. It is also called "tension roller assembly"

3.1.6

film (packaging material) reel

continuous sheet of paper, carton board, plastics film, metal foil or flexible laminate wound on a cylindrical core

3.1.7

film web

continuous sheet of paper, plastic film, metal foil or laminate

3.1.8

fold wrapping

wrap in which the material, due to its plasticity, keeps the fold