



SLOVENSKI STANDARD
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Varnost pakirnih strojev - 8. del: Stroji za pakiranje s trakovi

Safety of packaging machines - Part 8: Strapping machines

Sicherheit von Verpackungsmaschinen - Teil 8: Umreifungsmaschinen

Sécurité des machines d'emballage - Partie 8: Cerclouses

Ta slovenski standard je istoveten z: **prEN 415-8**

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Cerclouses

Sicherheit von Verpackungsmaschinen - Teil 8:
Umreifungsmaschinen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 146.

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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European foreword

This document (prEN 415-8:2022) has been prepared by Technical Committee CEN/TC 146 “Packaging machines – Safety”, the secretariat of which is held by UNI.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 415-8:2008.

The following significant changes have been made:

- Scope now includes needle strapping machines;
- Hand-held motor-operated electric strapping tools have been removed from the scope;
- Safety requirements have been rewritten so they are in line with EN 415-10:2014;
- Normative references have been changed to reflect the many changes that have been made to B1 and B2 standards.

EN 415, Safety of packaging machines consists of the following parts:

- *Part 1: Terminology and classification of packaging machines and associated equipment;*
- *Part 2: Pre-formed rigid container packaging machines;*
- *Part 4: Palletizers and depalletizers;*
- *Part 5: Wrapping machines;*
- *Part 6: Pallet wrapping machines;*
- *Part 7: Group and secondary packaging machines;*
- *Part 8: Strapping machines;*
- *Part 9: Noise measurement methods for packaging machines, packaging lines and auxiliary equipment, grade of accuracy 2 and 3;*
- *Part 10: General requirements.*

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

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

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Introduction

This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

- machine manufacturers (small, medium and large enterprises);
- health and safety bodies (regulators, accident prevention organizations, market surveillance etc.).

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

- machine users/employers (small, medium and large enterprises);
- machine users/employees (e.g. trade unions, organizations for people with special needs);
- service providers, e.g. for maintenance (small, medium and large enterprises);

The above-mentioned stakeholder groups have been given the possibility to participate at the drafting process of this document.

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

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 or hazardous events are covered are indicated in the scope of this document.

When requirements of this type-C standard are different from those, which are stated in type- A or type- B standards, the requirements of this type-C standard take precedence over the requirements of the other standards for machines that have been designed and built according to the requirements of this type-C standard.

The full set of requirements for machines in the scope of this document is composed by those given in this document in conjunction with the relevant requirements of EN 415-10: 2014.

The Annex ZA of this document will not list the EHSR which are not relevant for this kind of machines or are not covered for any other reason.

1 Scope

This document applies to strapping machines. This document established safety requirements for the following groups of machines:

- Powered hand strapping tools;
- Semi-automatic strapping machines;
- Automatic strapping machines.

This document does not apply to:

- Strapping tools, where the strap tension is only applied by manual effort;
- Machines, which are foreseen to use paper as strap;
- Hand-held motor-operated electric strapping tools.

NOTE Hand-held motor-operated electric strapping tools see EN 60745-2-18:2009 and EN 62841-1:2015.

This document does not consider the following hazards:

- The use of strapping machines in potentially explosive atmosphere;
- The 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 are associated with decommissioning strapping machines.

Hazards associated with decommissioning of strapping machines are not considered and therefore excluded but should be part of the instruction manual (see Clause 6), together with suited measures, if necessary.

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2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 415-1:2014, *Safety of packaging machines - Part 1: Terminology and classification of packaging machines and associated equipment*

EN 415-9:2009, *Safety of packaging machines - Part 9: Noise measurement methods for packaging machines, packaging lines and associated equipment, grade of accuracy 2 and 3*

EN 415-10:2014, *Safety of packaging machines - Part 10: General Requirements*

EN 1005-2:2003+A1:2008, *Safety of machinery - Human physical performance - Part 2: Manual handling of machinery and component parts of machinery*

EN 1672-2:2020, *Food processing machinery - Basic concepts - Part 2: Hygiene and cleanability requirements*

EN 60204-1:2018, *Safety of machinery - Electrical equipment of machines - Part 1: General requirements*

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EN ISO 7010:2020,¹ *Graphical symbols – Safety colours and safety signs – Registered safety signs (ISO 7010:2019)*

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

EN ISO 13849-1:2015, *Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design (ISO 13849-1:2015)*

EN ISO 13851:2019, *Safety of machinery - Two-hand control devices - Principles for design and selection (ISO 13851:2019)*

EN ISO 14120:2015, *Safety of machinery - Guards - General requirements for the design and construction of fixed and movable guards (ISO 14120:2015)*

EN ISO 14122-1:2016, *Safety of machinery - Permanent means of access to machinery - Part 1: Choice of fixed means and general requirements of access (ISO 14122-1:2016)*

EN ISO 14122-2:2016, *Safety of machinery - Permanent means of access to machinery - Part 2: Working platforms and walkways (ISO 14122-2:2016)*

EN ISO 14122-3:2016, *Safety of machinery - Permanent means of access to machinery - Part 3: Stairs, step-ladders and guard-rails (ISO 14122-3:2016)*

EN ISO 20643:2008,² *Mechanical vibration - Hand-held and hand-guided machinery - Principles for evaluation of vibration emission (ISO 20643:2005 + Amd. 1:2012)*

ISO 14159:2002, *Safety of machinery — Hygiene requirements for the design of machinery*

3 Terms and definitions

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For the purposes of this document, the terms and definitions given in EN ISO 12100:2010, EN 415-1:2014, EN 415-10: 2014 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at <http://www.electropedia.org/>

— ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1 Definitions of general terms**3.1.1****bayonet****lance****sword**

section of strap chute that moves under power to close the chute

Note 1 to entry: Typically this mechanism is fed through a pallet.

¹ document impacted by A1:2020.

² document impacted by A1:2012.

3.1.2**change parts**

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

3.1.3**compression device**

device that applies pressure to the product before and/or while it is strapped

Note 1 to entry: Most of the types of strapping machine identified in 3.2 can be equipped with compression devices.

3.1.4**hand operated**

machine functions or modes where the only power source is directly applied manual effort

3.1.5**pack
package**

assembly of product and packaging materials produced by a packaging machine

3.1.6**product**

article or articles that are to be strapped by the strapping machine

3.1.7**strap**

tape that is used to be passed around a product or a group of products, tensioned and then sealed to hold the products together

Note 1 to entry: strap is usually made from mild steel, or plastic like polypropylene or polyester.

3.1.8**strap accumulator**

mechanism or container located between the strap feed mechanism and the strap sealing mechanism which stores strap between the strap dispenser and the strap feed mechanism

3.1.9**strap arch
strap chute**

mechanism that guides the strap around the product

3.1.10**strap coil**

strap wound around a core

3.1.11**strap cutting mechanism**

mechanism that cuts the strap

3.1.12**strap dispenser**

mechanism that holds the strap coil and from which the strap is drawn off or which dispenses strap in a controlled manner

prEN 415-8:2022(E)**3.1.13****strap feed mechanism**

powered mechanism that feeds the strap

3.1.14**strap gripping mechanism**

mechanism that grips the end of the strap while the strap is tensioned around the product

3.1.15**strap retraction mechanism**

powered mechanism that applies some tension to pull the strap around the product

3.1.16**strap sealing mechanism**

mechanism that joins the strap using a clip, by welding the strap, or by notching

Note 1 to entry: Welding can be done by heating or by friction or by ultrasonic.

3.1.17**strap tension mechanism**

powered mechanism that applies tension to the strap around the product

3.1.18**strapping head**

assembly mounted in a strapping machine comprising a strap feed mechanism, a strap retraction mechanism, a strap tensioning mechanism (not fitted to all strapping heads) a strap gripping mechanism and a strap sealing mechanism

3.1.19**strapping machine**

packaging machine that applies a strap made from metal, plastic or laminate around a product or group of products

3.1.20**strap tension**

tension applied to the strap by the strap tension mechanism while the strap is pulled in direction of the strap tension mechanism without product

Note 1 to entry: Usually, a dynamometer or spring scale is used for measurement.

3.1.21**needle**

mechanism that moves the strap to the sealing mechanism in order to close the loop for sealing

3.2 Definitions of machines covered by this document**3.2.1****powered hand strapping tool**

portable machine that is held by the user during strapping (see Figure 1)

Note 1 to entry: Typically at least one of the following mechanisms is driven by pneumatic energy: strap gripping mechanism, strap retraction mechanism, strap tension mechanism, strap cutting mechanism, strap sealing mechanism. The strap is typically applied manually around a product or a group of products.

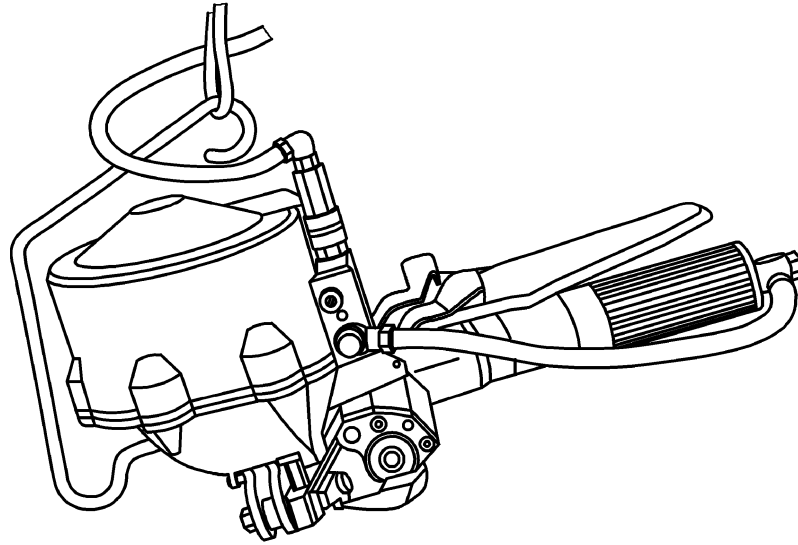


Figure 1 — Powered hand strapping tool

3.2.2

semi-automatic strapping machine

strapping machine where the strap is applied manually around a product or a group of products (see Figure 2)

Note 1 to entry: The characteristic features are:

- strap dispenser;
- strap feeding mechanism;
- strap gripping mechanism;
- strap retraction mechanism;
- strap tension mechanism;
- strap cutting mechanism;
- strap sealing mechanism;
- compression mechanism (optional)

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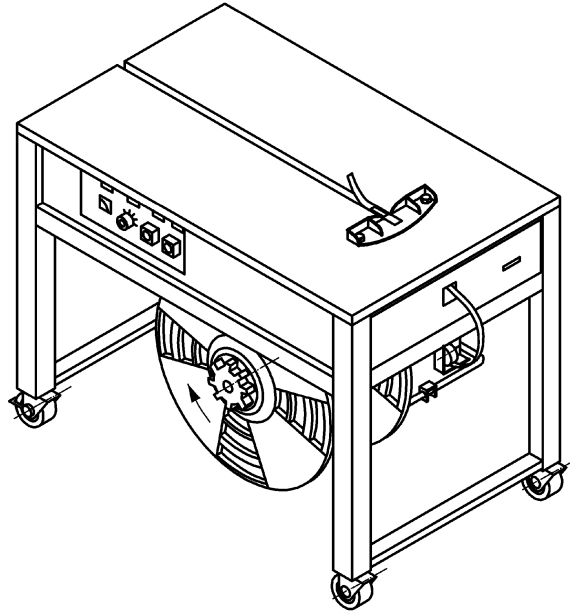


Figure 2 — Semi-automatic strapping machine

3.2.3

automatic strapping machine

strapping machine that applies a strap automatically around a product or a group of products (see Figure 3)

Note 1 to entry: The characteristic features are:

- strap dispenser;
- strap feeding mechanism;
- strap arch or strap chute;
- strap accumulator;
- strap gripping mechanism;
- strap retraction mechanism;
- strap tension mechanism;
- strap cutting mechanism;
- strap sealing mechanism;
- compression mechanism (optional);
- product feeding, discharging or positioning mechanisms (optional);
- turntable to rotate the product (optional)

Note 2 to entry: On an automatic strapping machine, the strapping process can be started manually or automatically (e.g. by the presence of the product), without further manual intervention. The product may be positioned under the arch either manually or automatically.

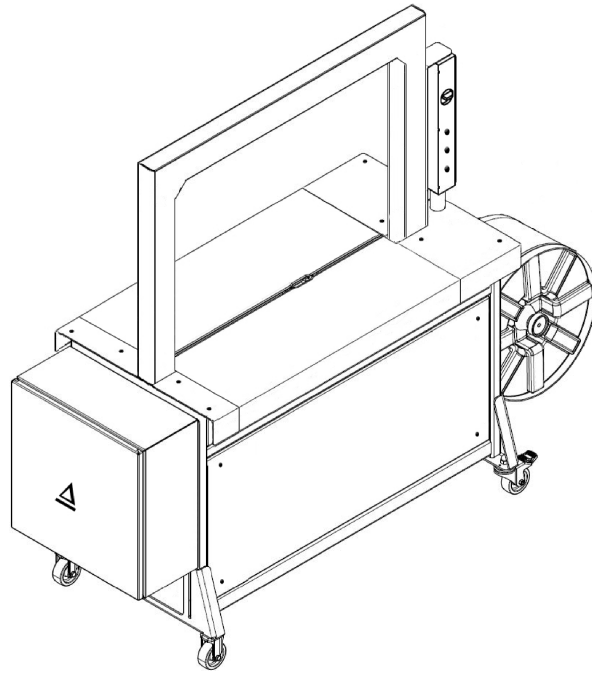


Figure 3 — Automatic strapping machine

3.2.4

horizontal pallet strapping machine

strapping machine that applies one or more straps horizontally around a pallet load (see Figure 4). Machines of this type will typically be automatic

Note 1 to entry: The characteristic features are:

- strap dispenser;
- strapping head;
- strap accumulator;
- mechanism to move the strapping head towards and away from the product;
- horizontal strap arch or strap chute;
- mechanism to raise and lower the strap arch or strap chute;
- product positioning mechanism;
- compression mechanism (optional);
- product conveying mechanism (optional)