

STN	Bezpečnosť baliacich strojov Časť 8: Páskovacie stroje	STN EN 415-8 26 7600
------------	---	--

Safety of packaging machines - Part 8: Strapping machines

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 04/25

Obsahuje: EN 415-8:2025

Oznámením tejto normy sa ruší
STN EN 415-8 (26 7600) z júla 2008

140415



Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2025
Slovenská technická norma a technická normalizačná informácia je chránená zákonom č. 60/2018 Z. z. o technickej normalizácii v znení neskorších predpisov.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 415-8

March 2025

ICS 55.200

Supersedes EN 415-8:2008

English Version

Safety of packaging machines - Part 8: Strapping machines

Sécurité des machines d'emballage - Partie 8 :
Cercleuses

Sicherheit von Verpackungsmaschinen - Teil 8:
Umreifungsmaschinen

This European Standard was approved by CEN on 6 January 2025.

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 CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN 415-8:2025 (E)

Contents	Page
European foreword.....	5
Introduction	7
1 Scope	8
2 Normative references.....	8
3 Terms and definitions	10
3.1 Definitions of general terms	10
3.2 Definitions of machines covered by this document.....	12
4 Safety requirements.....	15
4.1 General requirements	15
4.1.1 General.....	15
4.1.2 Requirements to achieve an acceptable risk reduction.....	15
4.1.3 Reduction of hazards from electrical equipment.....	16
4.1.4 Reduction of hazards generated by the control system	16
4.1.5 Reduction of thermal hazards	17
4.1.6 Reduction of noise hazards	17
4.1.7 Reduction of ergonomic hazards.....	17
4.1.8 Reduction of hygiene risks	17
4.2 Requirements for typical strapping machines.....	17
4.2.1 Pneumatic and hydraulic equipment.....	17
4.2.2 Reduction of risks generated by products and materials	17
4.2.3 Reduction of risks generated by strapped products	17
4.2.4 Reduction of risks generated by the strap	17
4.3 Requirements for common mechanisms on strapping machines	18
4.3.1 Strap dispenser.....	18
4.3.2 Strap feeding mechanism.....	19
4.3.3 Strap gripping mechanism.....	19
4.3.4 Strap retraction mechanism	19
4.3.5 Strap tension mechanism.....	19
4.3.6 Strap cutting mechanism.....	19
4.3.7 Strap sealing mechanism.....	19
4.3.8 Strap tension.....	19
4.4 Requirements for powered hand strapping tools	20
4.4.1 General.....	20
4.4.2 Powered mechanisms.....	20
4.4.3 Controls.....	20
4.4.4 Vibration	21
4.4.5 Ergonomic design principles	21
4.5 Requirements for a semi-automatic strapping machine	21
4.5.1 General.....	21
4.5.2 Strap dispenser.....	22
4.5.3 Strapping head	22
4.5.4 Strap feeding mechanism.....	22
4.5.5 Compression mechanisms	22
4.5.6 Integrity of safety related control systems	23
4.6 Requirements for an automatic strapping machine	23
4.6.1 General.....	23

4.6.2	Strap dispenser.....	24
4.6.3	Strapping head.....	24
4.6.4	Strap feeding mechanism	24
4.6.5	Strap chute	24
4.6.6	Product conveyors.....	24
4.6.7	Product positioning and compression mechanisms.....	24
4.6.8	Turntable.....	25
4.6.9	Integrity of safety related control systems.....	25
4.7	Requirements for horizontal pallet strapping machine.....	26
4.7.1	General	26
4.7.2	Strap dispenser.....	27
4.7.3	Strapping head.....	27
4.7.4	Strap chute assembly	27
4.7.5	Strap chute raise and lower mechanism.....	27
4.7.6	Product positioning and compression mechanisms.....	30
4.7.7	Product conveyor.....	30
4.7.8	Integrity of safety related control systems.....	30
4.8	Requirements for a vertical pallet strapping machine	31
4.8.1	General	31
4.8.2	Strap dispenser.....	31
4.8.3	Vertical strap chute.....	32
4.8.4	Strapping head.....	32
4.8.5	Raise and lower mechanism (pressure mechanism).....	32
4.8.6	Strap bayonet	32
4.8.7	Product positioning and compression mechanisms.....	32
4.8.8	Product conveyor.....	32
4.8.9	Turntable.....	32
4.8.10	Integrity of safety related control systems.....	33
4.9	Requirements for a needle strapping machine	33
4.9.1	General	33
4.9.2	Strap dispenser.....	35
4.9.3	Strapping head.....	35
4.9.4	Strap feeding mechanism	35
4.9.5	Needle	35
4.9.6	Product conveyors.....	35
4.9.7	Product positioning and Compression mechanisms	35
4.9.8	Lateral movement of the machine.....	35
4.9.9	Integrity of safety related control systems.....	36
5	Verification of safety requirements.....	36
5.1	General	36
5.2	Visual inspections with the machine stopped.....	36
5.3	Measurements with the machine stopped.....	36
5.3.1	Guards.....	36
5.3.2	Electrical testing	36
5.4	Visual inspections with the machine running.....	36
5.5	Measurements or tests with the machine running.....	37
5.5.1	Electrical testing	37
5.5.2	Measurement of noise emission.....	37
5.5.3	Vibration measurements on hand-held strapping tools	37
5.5.4	Temperature	38
5.6	Verification procedures	38
6	Information.....	39

EN 415-8:2025 (E)

6.1	General.....	39
6.2	Marking.....	39
6.3	Signals and warning signs	39
6.4	Instructions	40
6.4.1	General.....	40
6.4.2	Additional information for specific machines	40
Annex A	(informative) List of significant hazards	42
A.1	Hazards which occur on all machines in the scope of this document	42
A.2	Hazards specific to common mechanism on strapping machines.....	45
A.3	Hazards associated with a powered hand strapping tool.....	46
A.4	Hazards associated with a semi-automatic strapping machine	47
A.5	Hazards associated with an automatic strapping machine	49
A.6	Hazards associated with a horizontal pallet strapping machine.....	51
A.7	Hazards associated with a vertical pallet strapping machine	53
A.8	Hazards associated with a needle strapping machine.....	55
Annex B	(normative) Noise test code.....	57
B.1	General.....	57
B.2	Terms and definitions	57
B.3	Determination of emission sound pressure level at the workstation	58
B.4	Determination of the sound power level.....	59
B.5	Alternative method for very large machines	60
B.6	Assembly and installation conditions.....	61
B.7	Operating conditions	61
B.8	Measurement.....	61
B.9	Measurement uncertainty	61
B.10	Information to be recorded.....	62
B.11	Information to be reported	62
B.12	Declaration and verification of the noise emission values	62
Annex ZA	(informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC aimed to be covered	64
Bibliography	67

European foreword

This document (EN 415-8:2025) 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 September 2025, and conflicting national standards shall be withdrawn at the latest by September 2025.

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

This document supersedes 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.

Other Parts of EN 415, Safety of packaging machines, include:

- *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; fill and seal machines;*
- *Part 4: Palletizers and depalletizers;*
- *Part 5: Wrapping machines;*
- *Part 6: Pallet wrapping machines;*
- *Part 7: Group and secondary packaging machines¹;*
- *Part 9: Noise measurement methods for packaging machines, packaging lines and auxiliary equipment, grade of accuracy 2 and 3;*
- *Part 10: General requirements;*
- *Part 11: Determination of efficiency and availability.*

¹ EN 415-7:2006+A1:2008 is currently being revised with a new title: “Cartoning and case-packing machines”.

EN 415-8:2025 (E)

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

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

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

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.

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.

EN 415-8:2025 (E)**1 Scope**

This document is applicable to 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, intended for use with paper strap;
- hand-held motor-operated electric strapping tools.

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

This document deals with safety requirements for machine design, transport, installation, commissioning, operation, adjustment, maintenance and cleaning. The extent to which hazards, hazardous situations and events are covered is indicated in Annex A.

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 are generally part of the instruction manual (see Clause 6), together with suited measures, if necessary.

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 (IEC 60204-1:2016)*

EN ISO 3740:2019, *Acoustics — Determination of sound power levels of noise sources — Guidelines for the use of basic standards (ISO 3740:2019)*

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 7010:2020², *Graphical symbols — Safety colours and safety signs — Registered safety signs (ISO 7010:2019)*

EN ISO 8041-1:2017, *Human response to vibration — Measuring instrumentation — Part 1: General purpose vibration meters (ISO 8041-1:2017)*

EN ISO 8041-2:2021, *Human response to vibration — Measuring instrumentation — Part 2: Personal vibration exposure meters (ISO 8041-2:2021)*

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 11202:2010³, *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*

EN ISO 11203:2009⁴, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions from the sound power level*

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 12001:2009, *Acoustics — Noise emitted by machinery and equipment — Rules for the drafting and presentation of a noise test code (ISO 12001:1996)*

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

EN ISO 13849-1:2023, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2023)*

² As impacted by EN ISO 7010:2020/A1:2020.

³ As impacted by EN ISO 11202:2010/A1:2021.

⁴ As impacted by EN ISO 11203:2009/A1:2020.

EN 415-8:2025 (E)

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, stepladders and guard-rails (ISO 14122-3:2016)*

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

koniec náhľadu – text ďalej pokračuje v platenej verzii STN