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STN	**Bezpečnosť baliacich strojov Časť 2: Baliace stroje na vopred zhotovené tuhé obaly**	**STN EN 415-2 26 7600**

Safety of packaging machines - Part 2: Packaging machines for pre-formed rigid containers

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. 11/25

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EN 415-2

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ICS 55.200

Supersedes EN 415-2:1999

English Version

Safety of packaging machines - Part 2: Packaging machines for pre-formed rigid containers

Sécurité des machines d'emballage - Partie 2: Machines d'emballage pour contenants rigides préformés

Sicherheit von Verpackungsmaschinen - Teil 2: Verpackungsmaschinen für vorgefertigte formstabile Behälter

This European Standard was approved by CEN on 21 April 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.

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

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European foreword

This document (EN 415-2:2025) has been prepared by Technical Committee CEN/TC 146 “Safety of packaging machines”, 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of an identical text or by endorsement, at the latest by December 2025, and conflicting national standards shall be withdrawn at the latest by December 2025.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 415-2:1999.

The following significant changes have been made:

— Machines for secondary packing and unpacking have been removed from the Scope

— Description of hazards has been extended and the order of their presentation is hazard-based

— Safety requirements have been rewritten so that they are in line with EN 415-10:2014

— Noise test code has been rewritten to be in line with EN 415-9:2009

— Normative references have been changed to reflect the many changes that have been made to B1 and B2 standards.

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.

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

— *Part 1: Terminology and classification of packaging machines and associated equipment*

— *Part 2: Packaging machines for pre-formed rigid containers*

— *Part 4: Palletizers and depalletizers*

— *Part 5: Wrapping machines*

— *Part 6: Pallet wrapping machines*

— *Part 7: Group and secondary packaging machines*[1]

— *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*

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

— *Part 11: Determination of efficiency and availability.*

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 abovementioned 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.

Annex ZA of this document only lists Essential Health and Safety Requirements that are relevant for machines in the scope of this standard.

When an assembly of machinery or partly completed machinery (multi-functional machine) contains a function which is covered by another standard, the risk assessment and measures for that function should comply with the relevant standard. In addition, the risks presented by the combination of functions or mechanisms – which is not covered by one of the standards - should be considered.

NOTE EN ISO 11161:2007 and its A1:2010 provides guidance for combinations of machines.

1 Scope

This document is applicable to the following machines and to machines which incorporate more than one function as listed below. The document also applies to partly completed machinery as far as conformity is claimed for certain essential health and safety requirements.

This document applies to the following machines when they handle rigid containers:

— unscrambling machines

— cap removing machines

— cleaning machines

— sanitizing machines

— filling machines

— capping, closing and sealing machines

— closure securing machines

— inspection machines

— labelling machines

— decorating machines

— heating and cooling machines for packed product, working at atmospheric pressure

— sterilizing machines (excluding machines that sterilize using heat treatment)

with one or more of the following functions: cleaning, sanitizing, pasteurizing, filling, labelling, closing, sealing or inspecting and handling pre-formed rigid containers including their closures.

This document is also applicable to the following equipment if it is part of one of the machines listed above:

— conveyors

— vacuum transfer conveyors

— magnetic belt conveyors

— dispose or reject mechanisms (pushers)

— keg stopping devices

— keg lifting and inverting mechanisms

— extraction or ventilation systems

— hoppers

— rotary mechanisms

— coding and marking equipment incorporated in a packaging machine:

- hot foil coding equipment
- laser coding equipment
- ink jet coding equipment
- emboss coding equipment.

The individual machines in the scope of this document are described in 3.2.

This document deals with safety requirements and their verification for machine design, construction and information, applicable to installation, commissioning, operation, adjustment, maintenance, cleaning, sanitizing and dismantling of packaging machines for pre-formed rigid containers.

The extent to which hazards, hazardous situations and events are covered is indicated in Annex B.

This document does not apply to the following machines:

— machines that were manufactured before the date of publication of this document by CEN;

— machines for cups and trays or tubs made of a foil of plastic, aluminium or paper, which are in the scope of EN 415-3:2021;

— aerosol filling and sealing machines;

— filling machines for gas;

— autoclaves;

— conveyors which link packaging machines but are not integrated in packaging machines or part of packaging machines;

— blow moulding machines;

NOTE See EN 422:2009.

— sleeve label removing machines.

This document does not consider the following hazards:

— the use of packaging machines in potentially explosive atmospheres not generated by the machine itself;

— hazards associated with packing explosives;

— hazards arising from ancillary equipment, which is not part of the machine, e.g. equipment for evacuating gases, for cooling or refrigeration, for the supply of steam, energy, or product.

2 Normative references

The following documents are referred to in the text in such a way that some or all 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 12198-1:2000+A1:2008, *Safety of machinery - Assessment and reduction of risks arising from radiation emitted by machinery - Part 1: General principles*

EN 60204-1:2018, *Safety of machinery - Electrical equipment of machines - Part 1: General requirements (IEC 60204-1:2016)*

EN 60825-1:2014, *Safety of laser products - Part 1: Equipment classification and requirements (IEC 60825-1:2014)*

EN 60825-4:2006,[2] *Safety of laser products - Part 4: Laser guards (IEC 60825-4:2006)*

EN 61310-3:2008, *Safety of machinery - Indication, marking and actuation - Part 3: Requirements for the location and operation of actuators (IEC 61310-3:2007)*

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 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)*

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[2] Document impacted by A1:2008 and A2:2011.

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

EN ISO 7010:2020, *Graphical symbols - Safety colours and safety signs - Registered safety signs (ISO 7010:2019, Corrected version 2020-06)*

EN ISO 11200:2014,[3] *Acoustics — Noise emitted by machinery and equipment — Guidelines for the use of basic standards for the determination of emission sound pressure levels at a workstation and at other specified positions (ISO 11200:2014)*

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,[4] *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 11203:2009,[5] *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 (ISO 11203:1995)*

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 11553-1:2020,[6] *Safety of machinery - Laser processing machines - Part 1: Laser safety requirements (ISO 11553-1:2020)*

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 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 13732-3:2008, *Ergonomics of the thermal environment - Methods for the assessment of human responses to contact with surfaces - Part 3: Cold surfaces (ISO 13732-3:2005)*

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

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[3] Document impacted by A1:2020.

[4] Document impacted by A1:2021.

[5] Document impacted by A1:2020.

[6] Document impacted by A11:2020.

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

EN ISO 13854:2019, *Safety of machinery - Minimum gaps to avoid crushing of parts of the human body (ISO 13854:2017)*

EN ISO 13855:2024, *Safety of machinery - Positioning of safeguards with respect to the approach speeds of parts of the human body (ISO 13855:2024)*

EN ISO 14119:2013, *Safety of machinery - Interlocking devices associated with guards - Principles for design and selection (ISO 14119:2013)*

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 14122-2:2016, *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)*

EN ISO 20607:2019, *Safety of machinery - Instruction handbook - General drafting principles (ISO 20607:2019)*

ISO/TS 15066:2016, *Robots and robotic devices — Collaborative robots*