



SLOVENSKI STANDARD

oSIST prEN 1034-1:2019

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Varnost strojev - Varnostne zahteve za načrtovanje in konstrukcijo strojev in opreme za izdelavo papirja - 1. del: Splošne zahteve

Safety of machinery - Safety requirements for the design and construction of paper making and finishing machines - Part 1: Common requirements

Sicherheit von Maschinen - Sicherheitstechnische Anforderungen an Konstruktion und Bau von Maschinen der Papierherstellung und Ausrüstung - Teil 1: Gemeinsame Anforderungen

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Sécurité des machines - Prescriptions de sécurité pour la conception et la construction de machines de fabrication et de finition du papier - Partie 1: Prescriptions communes

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Ta slovenski standard je istoveten z: prEN 1034-1

ICS:

13.110	Varnost strojev	Safety of machinery
21.020	Značilnosti in načrtovanje strojev, aparatov, opreme	Characteristics and design of machines, apparatus, equipment
85.100	Oprema za papirno industrijo	Equipment for the paper industry

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EUROPEAN STANDARD
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Safety of machinery - Safety requirements for the design and construction of paper making and finishing machines - Part 1: Common requirements

Sécurité des machines - Prescriptions de sécurité pour
la conception et la construction de machines de
fabrication et de finition du papier - Partie 1:
Prescriptions communes

Sicherheit von Maschinen - Sicherheitstechnische
Anforderungen an Konstruktion und Bau von
Maschinen der Papierherstellung und Ausrüstung -
Teil 1: Gemeinsame Anforderungen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 198.

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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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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prEN 1034-1:2019 (E)**European foreword**

This document (prEN 1034-1:2019) has been prepared by Technical Committee CEN/TC 198 "Printing and paper machinery - Safety", the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 1034-1:2000+A1:2010.

In comparison with the previous edition, the following technical modifications have been made:

- a) In Clause 3, the term "Paper converting machines" was defined;
- b) In Clause 3, a tolerance for crawl speed was specified;
- c) In Clause 3, the term "running machine" has been deleted;
- d) In Clause 3, addition of a definition for trapping points;
- e) In Clause 5.1.1, clarification on the use of signal colours;
- f) In Clause 5.4.4, addition of safety requirements for trapping points at reel fronts;
- g) In Clause 5.5, requirements for means of access, walkways and guard-rails adapted to the revised EN ISO 14122 (all parts), sector-specific deviations will still to be taken into account;
- h) In Clause 7.3, the requirements for the instruction handbook have been extended: all requirements previously contained in Clause 5 in relation to the instruction handbook have been transferred to Clause 7.3;
- i) In Clause 5.9.5, explanation of the safety significance of crawl speed;
- j) In Clause 5.14.6, reference to EN ISO 13849-2 for validation of safety functions added;
- k) Review of Annex ZA.

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 Directives.

For relationship with EU Directives, see informative Annexes ZA, which is an integral part of this document.

This document is part 1 of a standard for the technical safety requirements for the design and construction of paper making and finishing machines which consists of the following parts:

- *Part 1: Common requirements*
- *Part 2: Barking drums*
- *Part 3: Winders and slitters, plying machines*
- *Part 4: Pulpers and their feeding facilities*

- *Part 5: Sheeters*
- *Part 6: Calenders*
- *Part 7: Chests*
- *Part 8: Refining plants*
- *Part 13: Machines for de-wiring bales and units*
- *Part 14: Reel splitter*
- *Part 16: Paper and board making machines*
- *Part 17: Tissue making machines*
- *Part 21: Coaters*
- *Part 22: Wood grinders*
- *Part 26: Roll packaging machines*
- *Part 27: Roll handling systems*

CEN/TC 198 intends to prepare further parts to cover the paper making and finishing machines listed in Annex A.

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prEN 1034-1:2019 (E)

Introduction

This document is a C type standard as stated in EN ISO 12100:2010. The standard consists of a number of parts which are listed in the foreword. The extent to which hazards are covered is indicated in the scope of this standard.

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1 Scope

This document specifies safety requirements.

This document is applicable to paper making and paper finishing machines. It contains definitions and requirements which apply to all paper making and paper finishing machines listed in Annex A and is intended to be used in connection with the specific part applicable for the respective machine listed in Annex A. Specific parts can contain additional requirements or deviations from EN 1034-1 in which case the specific stipulations take precedence over the specification made in EN 1034-1. The standard deals with the hazards listed in Annex B.

This document deals with all significant hazards, hazardous situations or hazardous events relevant to paper making and paper finishing machines, when they are used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer.

This document does not apply to machines used in paper converting. See EN 1010-1 to EN 1010-5.

This document applies to machines produced after the date of publication of this standard.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitute 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 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)*

EN ISO 7731:2008, *Ergonomics — Danger signals for public and work areas — Auditory danger signals (ISO 7731:2003)*

EN ISO 11688-1:2009, *Acoustics — Recommended practice for the design of low-noise machinery and equipment — Part 1: Planning (ISO/TR 11688-1:1995)*

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

EN ISO 13849-2:2012, *Safety of machinery — Safety-related parts of control systems — Part 2: Validation (ISO 13849-2:2012)*

EN ISO 13850:2015, *Safety of machinery — Emergency stop functions — Principles for design (ISO 13850:2015)*

EN ISO 13854:2019, *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body*

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EN ISO 13856-1:2013, *Safety of machinery — Pressure-sensitive protective devices — Part 1: General principles for the design and testing of pressure sensitive mats and pressure sensitive floors (ISO 13856-1:2013)*

EN ISO 14118:2018, *Safety of machinery — Prevention of unexpected start-up (ISO 14118:2017)*

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 14122-4:2016, *Safety of machinery — Permanent means of access to machinery — Part 4: Fixed ladders (ISO 14122-4:2016)*

EN ISO 14123-1:2015, *Safety of machinery — Reduction of risk to health from hazardous substances emitted by machinery — Part 1: Principles and specifications for machinery manufacturers (ISO 14123-1:2015)*

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EN ISO 14123-2:2015, *Safety of machinery — Reduction of risk to health from hazardous substances emitted by machinery — Part 2: Methodology leading to verification procedures (ISO 14123-2:2015)*

EN ISO 19353:2016, *Safety of machinery — Fire prevention and fire protection (ISO 19353:2015)*

EN 614-1:2006+A1:2009, *Safety of machinery — Ergonomics design principles — Part 1: Terminology and general principles*

EN 614-2:2000+A1:2008, *Safety of machinery — Ergonomics design principles — Part 2: Interaction between the design of machinery and tasks*

EN 809:1998+A1:2009, *Pumps and pump units for liquids — Common safety requirements*

EN 1127-1:2011, *Explosive atmospheres — Explosion prevention and protection — Part 1: Basic concepts and methodology*

EN 1837:1999+A1:2009, *Safety of machinery — Integral lighting of machines*

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 13023:2003+A1:2010, *Noise measurement methods for printing, paper converting, paper making machines and auxiliary equipment — Accuracy grades 2 and 3*

prEN ISO 13857:2017, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO/DIS 13857:2017)*

EN 60529:1991¹⁾, *Degrees of protection provided by enclosures (IP code) (IEC 60529:1989)*

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

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

EN 61496-1:2013, *Safety of machinery — Electro-sensitive protective equipment — Part 1: General requirements and tests (IEC 61496-1:2012)*

EN 61511-1:2017²⁾, *Functional safety — Safety instrumented systems for the process industry sector — Part 1: Framework, definitions, system, hardware and application programming (IEC 61511-1:20167)*

EN 62061:2005³⁾, *Safety of machinery — Functional safety of safety-related electrical, electronic and programmable electronic control systems (IEC 62061:2005)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100:2010 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 <https://iso.org/obp>

3.1

paper making and finishing machines

machines with which pulp or paper fibres are obtained, processed, joined together to form and also to finish paper, board, tissue and fibreboard

3.2

paper converting machines

machines which are downstream of paper making and finishing machines, such as e.g. cutting machines (guillotine cutters), corrugated board making and processing machines

Note 1 to entry: Safety requirements for paper converting machines are dealt with in the EN 1010 series (EN ISO 12643 series).

3.3

machine section

functional unit of a paper making machine such as wire section, press section, dryer section, smoothing unit, coater, winding unit

1) This document is impacted by the amendments EN 60529:1991/A1:2000, EN 60529:1991/A2:2013 and the corrigenda EN 60529:1991/AC:2016-12 and EN 60529:1991/A2:2013/AC:2019-02.

2) This document is impacted by the amendment EN 61511-1:2017/A1:2017.

3) This document is impacted by the amendments EN 62061:2005/A1:2013, EN 62061:2005/A2:2015 and the corrigendum EN 62061:2005/Cor.:2010.

prEN 1034-1:2019 (E)**3.4****crawl speed**

speed as low as possible, but a set value of not more than 0,25 m/s (15 m/min)

Note 1 to entry: Process related fluctuations may result in temporary speed increases of up to 5 m/min.

Note 2 to entry: The crawl speed may differ depending on the type of machine. Machine-specific deviations from the defined values are described in the subsequent parts of this standard.

3.5**hold-to-run control**

operation of the machine by means of a hold-to-run control device as defined in EN ISO 12100:2010, 3.28.3

3.6**inrunning nips, wrapping and trapping points****3.6.1****inrunning nip**

danger point caused by rotating roll, cylinder or roller nips where persons, parts of the body or clothing can be drawn in

Note 1 to entry Such nips arise between:

- a) counter-rotating part (Figure 1);
- b) a rotating part and an adjacent fixed part (see Figure 1);
- c) parts rotating in the same direction, but with different peripheral speeds and/or surface properties,

if adequate safety distances are not maintained. Examples of inrunning nips are illustrated in Figure 1.

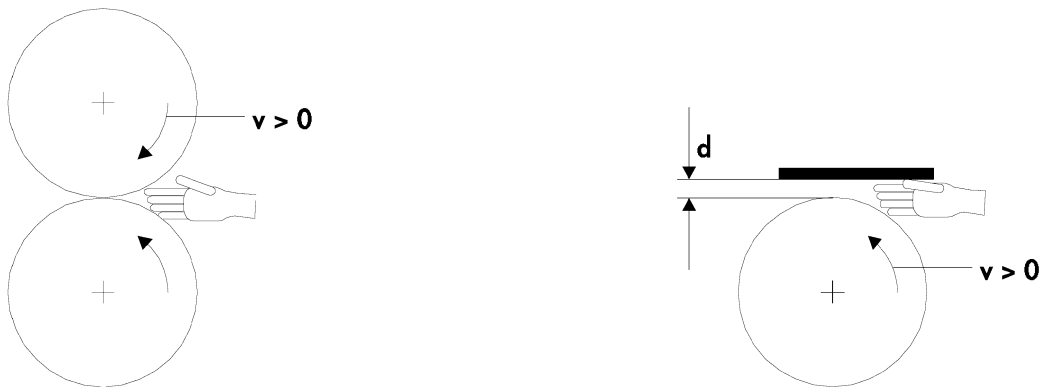
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a1) inrunning nip created by counter-rotating parts

a2) inrunning hazard created by counter-rotating parts



b1) inrunning nips created by a rotating part and an adjacent fixed part

b2) inrunning nip created by a rotating part and an adjacent fixed parts (machine frame, floor)

Key

- v circumferential speed
- d minimum distance

NOTE Prevention of drawing-in hazard during whole-body access if $d \geq 500$ mm or during arm access if $d \geq 120$ mm (see 5.4.2).

Figure 1 — Examples of inrunning nips**3.6.2****wrapping point**

danger point where moving materials, such as felts or screens and wires, aprons or ropes or strong board webs, are fed onto moving parts, such as rolls, cylinders or discs, which can draw in persons, parts of the body or clothing

Note 1 to entry: Examples of wrapping points are given in Figure 2.