SLOVENSKI STANDARD
SIST EN 1034-1:2000+A1:2010

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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 für Konstruktion und Bau von Maschinen der Papierherstellung und Ausrüstung - Teil 1: Gemeinsame Anforderungen

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

Ta slovenski standard je istoveten z: **EN 1034-1:2000+A1:2010**

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13.110	Varnost strojev	Safety of machinery
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85.100	Oprema za papirno industrijo	Equipment for the paper industry

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

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This European Standard was approved by CEN on 17 September 1999 and includes Amendment 1 approved by CEN on 17 January 2010.

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Foreword

This document (EN 1034-1:2000+A1:2010) has been prepared by Technical Committee CEN/TC 198 “Printing and paper machinery - Safety”, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by September 2010, and conflicting national standards shall be withdrawn at the latest by September 2010.

This document includes Amendment 1, approved by CEN on 2010-01-17.

This document supersedes EN 1034-1:2000.

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

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.

⟨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).

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

This Standard 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: Calanders

⟨A1⟩ Part 7: Chests ⟨A1⟩

⟨A1⟩ 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 ⟨A1⟩

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

According to the CEN/CENELEC Internal Regulations, the national standards organizations 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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

This European Standard is a C type standard as stated in ▌A1⟩ EN ISO 12100:2003 ⟨A1▌. The standard consists of a number of parts which are listed in annex A. The extent to which hazards are covered is indicated in the scope of this standard.

1 Scope

1.1 This standard applies 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 shall 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 ▌A1⟩ EN 1034-1 ⟨A1▌ in which case the specific stipulations take precedence over the specification made in ▌A1⟩ EN 1034-1 ⟨A1▌. The standard deals with the hazards listed in 4.

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

1.3 This standard applies to machines produced after ..... (date of CEN approval).

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.

▌A1⟩ *deleted text* ⟨A1▌

EN 349, *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body*

▌A1⟩ *deleted text* ⟨A1▌

EN 457, *Safety of machinery — Auditory danger signals — General requirements, design and testing (ISO 7731:1986 modified)*

EN 547-1, *Safety of machinery — Human body measurements — Part 1: Principles for determining the dimensions required for openings for whole body access into machinery*

EN 547-2, *Safety of machinery — Human body measurements — Part 2: Principles for determining the dimensions required for access openings*

EN 547-3, *Safety of machinery — Human body measurements — Part 3: Anthropometric data*

▌A1⟩ *deleted text* ⟨A1▌

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

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

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

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

〈A1〉 EN 809, *Pumps and pump units for liquids — Common safety requirements* 〈A1〉

EN 811:1996, *Safety of machinery — Safety distances to prevent danger zones being reached by the lower limbs*

EN 894-1, *Safety of machinery — Ergonomic 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 — Ergonomic requirements for the design of displays and control actuators — Part 2: Displays*

EN 894-3, *Safety of machinery — Ergonomic 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*

〈A1〉 *deleted text* 〈A1〉

EN 982, *Safety of machinery — Safety requirements for fluid power systems and their components — Hydraulics*

EN 983, *Safety of machinery — Safety requirements for fluid power systems and their components — Pneumatics*

EN 1005-2, *Safety of machinery — Human physical performance — Part 2: Manual handling of objects associated to machinery*

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

EN 1010-1, *Safety of machinery — Safety requirements for the design and construction of printing and paper converting machines — Part 1: Common requirements*

EN 1010-2, *Safety of machinery — Safety requirements for the design and construction of printing and paper converting machines — Part 2: Printing and varnishing machines including pre-press machinery*

EN 1010-3, *Safety of machinery — Safety requirements for the design and construction of printing and paper converting machines — Part 3: Cutting machines*

EN 1010-4, *Safety of machinery — Safety requirements for the design and construction of printing and paper converting machines — Part 4: Bookbinding, Paper Converting and Paper Finishing Machines*

EN 1010-5, *Safety of machinery — Safety requirements for the design and construction of printing and paper converting machines — Part 5: Machines for the production of corrugated board and machines for the conversion of flat and corrugated board*

EN 1037:1995, *Safety of machinery — Prevention of unexpected start-up*

〈A1〉 *deleted text* 〈A1〉

EN 1088, *Safety of machinery — Interlocking devices associated with guards — Principles for design and selection*

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

EN 1760-1, *Safety of machinery — Pressure-sensitive protective devices — Part 1: General principles for the design and testing of pressure sensitive mats and pressure sensitive floors*

prEN 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*

prEN 1837, *Safety of machinery — Integral lighting of machines*

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

〉A1〈 EN 13478:2001, *Safety of machinery — Fire prevention and protection* 〉A1〈

〉A1〈 EN ISO 11688-1:1998, *Acoustics — Recommended practice for the design of low-noise machinery and equipment — Part 1: Planning (ISO/TR 11688-1:1995)* 〉A1〈

〉A1〈 EN ISO 12100-1:2003, *Safety of machinery — Basic concepts, general principles for design — Part 1: Basic terminology, methodology (ISO 12100-1:2003)* 〉A1〈

〉A1〈 EN ISO 12100-2:2003, *Safety of machinery — Basic concepts, general principles for design — Part 2: Technical principles (ISO 12100-2:2003)* 〉A1〈

〉A1〈 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)* 〉A1〈

〉A1〈 EN ISO 13849-1:2008, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2006)* 〉A1〈

〉A1〈 EN ISO 13850:2008, *Safety of machinery — Emergency stop — Principles for design (ISO 13850:2006)* 〉A1〈

〉A1〈 EN ISO 13857:2008, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2008)* 〉A1〈

〉A1〈 EN ISO 14121-1:2007, *Safety of machinery — Risk assessment — Part 1: Principles (ISO 14121-1:2007)* 〉A1〈

〉A1〈 EN ISO 14122-3, *Safety of machinery — Permanent means of access to machinery — Part 3: Stairs, stepladders and guard-rails (ISO 14122-3:2001)* 〉A1〈

〉A1〈 EN ISO 14122-4, *Safety of machinery — Permanent means of access to machinery — Part 4: Fixed Ladders (ISO 14122-4:2004)* 〉A1〈

prEN 12198-1, *Safety of machinery — Assessment and reduction of risks arising from radiation emitted by machinery — Part 1: General Principles*

〉A1〈 *deleted text* 〉A1〈

〉A1〈 EN 60204-1:2006, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2005, modified)* 〉A1〈

EN 60529, *Degrees of protection provided by enclosures (IP code)*

EN 60825-1, *Safety of laser products — Part 1: Equipment classification, requirements and user's guide*

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

EN 61496-2, *Safety of machinery — Electro-sensitive protective equipment — Part 2: Particular requirements for systems using active opto-electronic protective devices*

〈A1〉 EN 61511-1:2004, *Functional safety — Safety instrumented systems for the process industry sector — Part 1: Framework, definitions, system, hardware and software requirements (IEC 61511-1:2003 + Corrigendum 2004)* 〈A1〉

〈A1〉 EN 62061:2005, *Safety of machinery — Functional safety of safety-related electrical, electronic and programmable electronic control systems (IEC 62061:2005)* 〈A1〉

3 Terms and definitions

For the purpose of this standard, the definitions given in 〈A1〉 EN ISO 12100-1:2003 〈A1〉 and the following definitions apply:

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
see EN 1010

3.3
Machine section
functional unit of a paper making machine such as wire section, press section, dryer section, smoothing unit, coater, winding unit.

3.4
Crawl speed
the lowest practicable speed, no greater than 0,25 m/s (15 m/min). It can differ for various types of machines and is then referred to under the sections describing specific machine types.

3.5
Running machine
machine operating at a speed higher than crawl speed.

3.6
Hold-to-run control
operation of the machine by means of a device as defined in 3.23.3 of EN 292-1:1991.

3.7
Inrunning nips and wrapping points

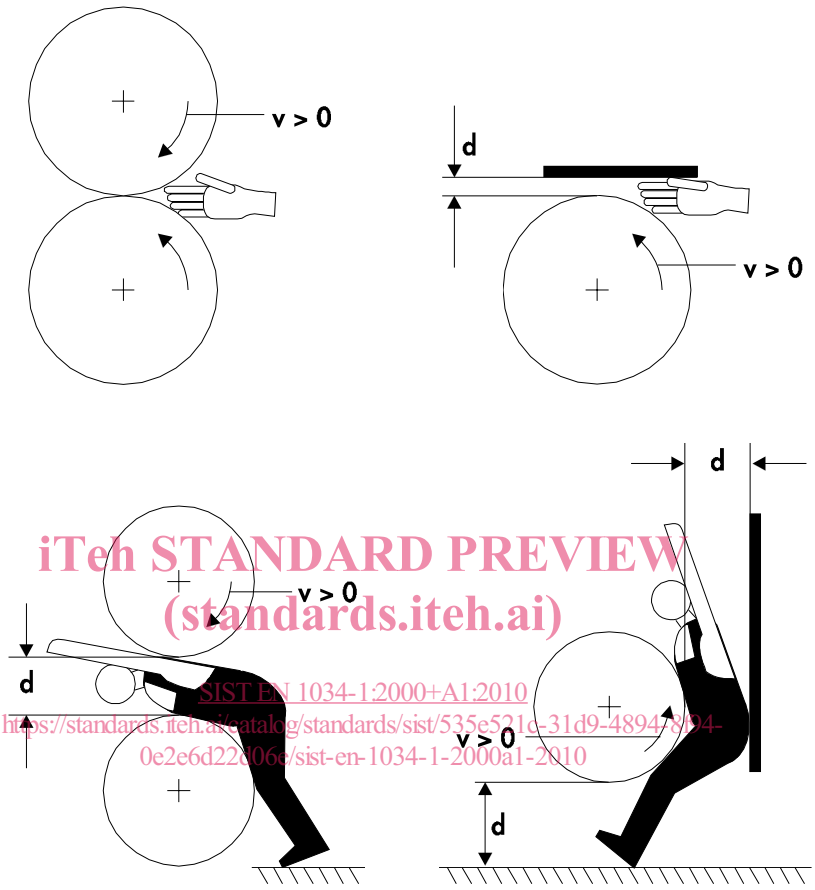
3.7.1
Inrunning nip
danger point caused by rotating roll, cylinder or roller nips where persons, parts of the body or clothing can be drawn in. Such nips arise between

a) counter-rotating part;

b) a rotating part and an adjacent fixed part;

c) parts rotating in the same direction, but with different peripheral speeds and surface properties, if adequate safety distances are not maintained.

Examples of inrunning nips are illustrated in figure 1.



v circumferential speed

NOTE Prevention of drawing-in hazard if d > 500 mm or d > 120 mm depending on the conditions defined in 5.4.1.

Figure 1 — Examples of inrunning nips

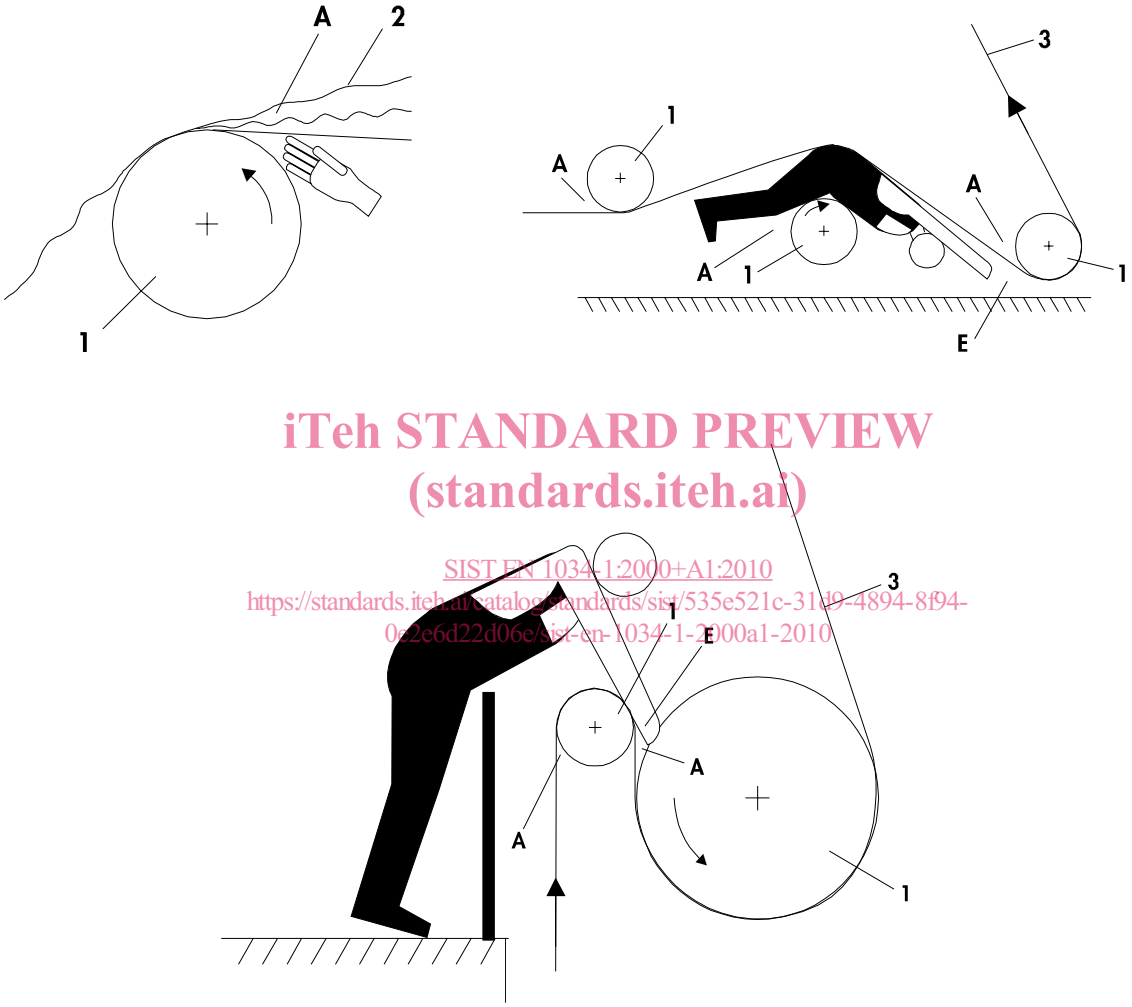
3.7.2
Wrapping point
danger point where moving materials, such as felts or screens and wires, aprons or ropes or strong board webs, are fed onto moving parts, such as rolls, cylinders or discs, which can draw in persons, parts of the body or clothing if adequate safety distances are not maintained. Examples of wrapping points are given in figure 2.

3.8
Paper
generic term for paper and board, tissue.

3.9
Broke
scraps of paper, paper breaks and paper with imperfections.

3.10
Fence-type enclosure
type of guard preventing access to a danger point with a minimum height of 1,4 m and a clearance between floor and lower edge of the fence of 0,4 m maximum. This definition does not relate to fall-off protections.

3.11
Nip bar
type of guard arranged directly on the nip of a pair of rollers or some other nip. For examples of nip bars see figure 3.



A wrapping point
E inrunning nip

1 roller, cylinder
2 rope
3 felt, screen

Figure 2 — Examples of wrapping points