SLOVENSKI STANDARD
SIST EN 1034-3:2000+A1:2010

01-februar-2010

Varnost strojev - Varnostne zahteve za načrtovanje in konstrukcijo strojev in opreme za izdelavo papirja - 3. del: Stroji za navijanje, rezanje in pregibanje svitkov

Safety of machinery - Safety requirements for the design and construction of paper making and finishing machines - Part 3: Winders and slitters, plying machines

Sicherheit von Maschinen - Sicherheitsanforderungen an Konstruktion und Bau von Maschinen der Papierherstellung und Ausrüstung - Teil 3: Umroller, Rollenschneidemaschinen, Doubliermaschinen

Sécurité des machines - Prescriptions de sécurité pour la conception et la construction de machines de fabrication et de finition du papier - Partie 3: Visiteuses, bobineuses et machines de fabrication du papier multicouches

Ta slovenski standard je istoveten z: **EN 1034-3:1999+A1:2009**

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

SIST EN 1034-3:2000+A1:2010 **en,fr**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 1034-3:1999+A1

December 2009

ICS 85.100

Supersedes EN 1034-3:1999

English Version

Safety of machinery - Safety requirements for the design and construction of paper making and finishing machines - Part 3: Winders and slitters, plying machines

Sécurité des machines - Prescriptions de sécurité pour la conception et la construction de machines de fabrication et de finition du papier - Partie 3: Visiteuses, bobineuses et machines de fabrication du papier multicouches

Sicherheit von Maschinen - Sicherheitsanforderungen an Konstruktion und Bau von Maschinen der Papierherstellung und Ausrüstung - Teil 3: Umroller, Rollenschneidemaschinen, Doubliermaschinen

This European Standard was approved by CEN on 17 September 1999 and includes Amendment 1 approved by CEN on 17 November 2009.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, 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.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 1034-3:1999+A1:2009: E

Contents

Page

Foreword

This document (EN 1034-3:1999+A1:2009) 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 June 2010, and conflicting national standards shall be withdrawn at the latest by June 2010.

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.

This document includes Amendment 1 approved by CEN on 17 November 2009.

This document supersedes EN 1034-3:1999.

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

This European Standard 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).

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

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, 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 EN 1070:1998. The extent to which hazards are covered is indicated in the scope of this standard.

1 Scope

This European Standard applies to winders and slitters and plying machines and should be used together with [A1) EN 1034-1:2000+A1:2010 (A1]. It deals with the significant hazards listed in clause 4. Respective safety requirements and/or measures are specified in clause 5. The specifications made in this standard take precedence over any deviating specification made in [A1) EN 1034-1:2000+A1:2010 (A1].

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

This standard applies to machines produced after 17.11.1999.

2 Normative references

This European Standard incorporates dated or undated provisions from other publications. These normative references are cited in the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 292-1:1991, *Safety of machinery - Basic concepts - General principles for design - Part 1: Basic terminology, methodology.*

EN 292-2:1991/ A1:1995, *Safety of machinery - Basic concepts - General principles for design - Part 2: Technical principles and specifications.*

EN 294:1992, *Safety of machinery - Safety distances to prevent danger zones being reached by the upper limbs.*

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

EN 418, *Safety of machinery - Emergency stop equipment, functional aspects - Principles for design.*

EN 954-1, *Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design.*

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.*

[A1) EN 1034-1:2000+A1:2010 (A1], *Safety of machinery - Safety requirements for the design and construction of paper making and finishing machines - Part 1: Common requirements.*

EN 1050, *Safety of machinery - Principles for risk assessment.*

EN 1070:1998, *Safety of machinery – Terminology.*

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

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.*

EN 1837, *Safety of machinery - Integral lighting of machines.*

[A1) EN 13023, *Noise measurement methods for printing, paper converting, paper making machines and auxiliary equipment - Accuracy grades 2 and 3* (A1]

EN 60204-1:1992, *Safety of machinery - Electrical equipment - Part 1: General requirements.*

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

3 Terms and definitions

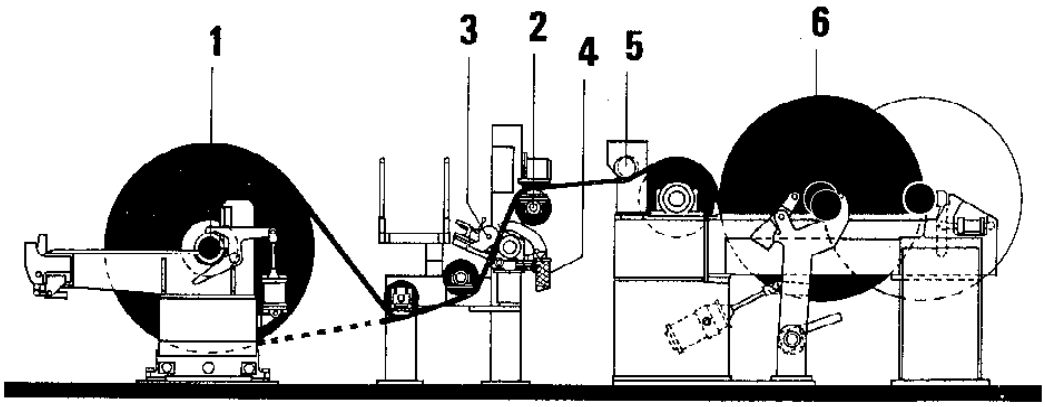
For the purposes of this standard, the definitions given in [A1) EN 1034-1:2000+A1:2010 (A1], EN 1070:1998, EN 292-1:1991, and the following definitions apply:

3.1
winders
machines which prepare the web for subsequent processing, for example by changing the winding hardness, removing broken webs or turning over of the web. Figure 1 illustrates the principle of a winder.

3.2
slitters
machines for cutting web in the length direction and for winding the separate web. They can either have a winding shaft or are shaftless with a core tube. Depending on the type of design, slitters are classified into two-drum and centre-driven slitters.

Figure 2 illustrates the principle of a two-drum slitter, figure 3 illustrates the principle of a centre-driven slitter.

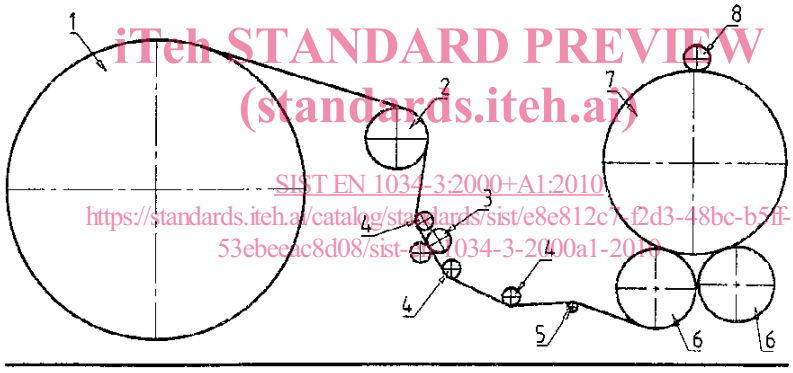
3.3
plying machines
machines which combine, wind and possibly slit 2 or more webs. Figure 4 illustrates the principle of a plying machine.



NOTE Safety devices are not shown.

1 unwinding unit
2 web tension measurement
3 cutting section (individual knives)
4 trim suction unit
5 spreader roll
6 winding unit

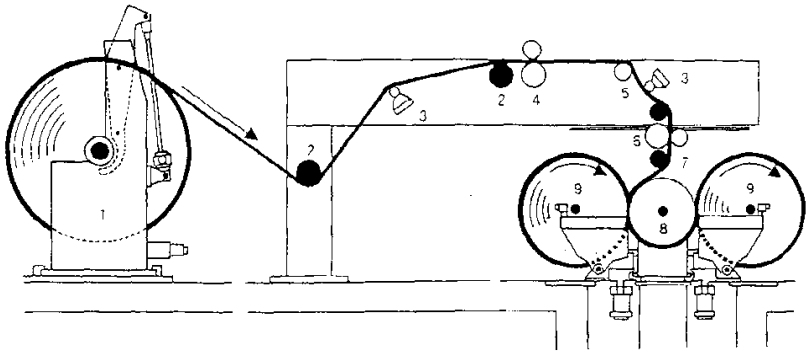
Figure 1 — Principle of a winder



NOTE Safety devices are not shown.

1 unwinding unit
2 guide roller
3 knife
4 guide roller
5 spreader roll
6 drum
7 winding head
8 pressure roller

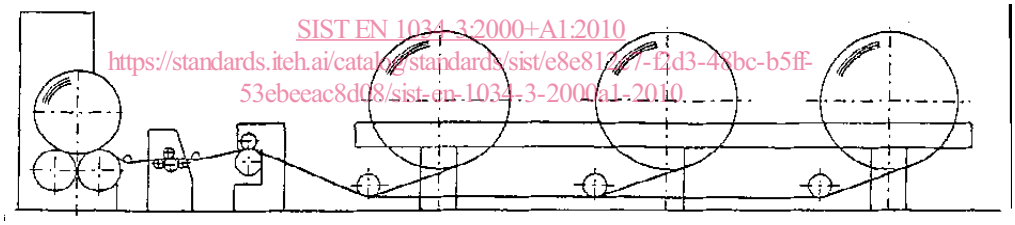
Figure 2 — Principle of a two-drum slitter



NOTE Safety devices are not shown

1	reel unwinding unit with core ejection mechanism	5	tension measuring roller
2	guide roller	6	slitting device
3	spreading device with automatic threading	7	slit web
4	pretrimming device	8	supporting drum
		9	reel winding heads

Figure 3 — Principle of a centre-driven slitter



NOTE Safety devices are not shown

Figure 4 — Principle of a plying machine

4 List of significant hazards

This clause contains all the significant hazards, as far as they are dealt with in this standard, identified by risk assessment in accordance with EN 1050 as significant for this type of machinery and which require action to eliminate or reduce the risk.

Table 1 — List of significant hazards

Hazards	prEN 1034-3	[A1] EN 1034-1:2000+A1:2010 [A1]
Mechanical hazards		
Crushing hazard	5.15; 5.16; 5.17; 5.21	5.1; 5.3
Shearing hazard	5.21; 5.27	5.1
Cutting or severing hazard	5.18; 5.25; 5.26; 5.27	5.1; 5.11; 5.12
Entanglement hazard	5.28; 5.29	5.2
Drawing-in or trapping hazard	5.3; 5.15; 5.19; 5.20	5.1; 5.4
Impact hazard	5.11.2; 5.20; 5.23; 5.24	5.1
Stabbing or puncture hazard		5.1; 5.12
Friction or abrasion hazard	5.29	5.1
High-pressure fluid ejection hazard	5.13	5.24
Ejection of parts (parts of machines or processed material/workpieces)	5.16; 5.21; 5.22	5.2
Loss of stability (of machines or machine parts)	5.8.3; 5.22	clause 7
Slip, trip and fall hazards in relationship with machines (because of their mechanical nature)	5.4	5.5
Electrical hazards, for example		
Electrical contact (direct or indirect)	5.12	5.23
Electrostatic phenomena	5.12	5.23
Thermal radiation or other phenomena such as ejection of molten particles, and chemical effects from short-circuits, overloads etc.	5.5; 5.12	5.8; 5.23
External influences on electrical equipment	5.12	5.23
Thermal hazards resulting in:		
Burns and scalds, by a possible contact of persons, by flames or explosions and also by the radiation of heat sources		5.13; 5.17
Health-damaging effects by hot or cold work environment		5.22
Hazards generated by noise, resulting in:		
Hearing loss (deafness), other physiological disorders (e.g. loss of balance, loss of awareness)	5.9; clause 7	5.15
Interferences with speech communication, acoustic signals etc.	5.9	5.15
Hazards from vibration	5.8.3	
Hazards generated by radiation, especially:		
Electric arcs		5.8; 5.23
Lasers		5.21
Ionizing radiation sources		5.20
Hazards generated by materials and substances processed, used or exhausted by machines, for example		
Hazards resulting from contact with or inhalation of harmful fluids, gases, mists, fumes and dusts		5.16

(continued)

Table 1 (concluded)

Hazards	prEN 1034-3	EN 1034-1:2000+A1:2010
Fire or explosion hazards	5.12	5.13; 5.18; 5.19; 5.23
Hazards generated by neglecting ergonomic principles in machine design (mismatch of machinery with human characteristics and abilities) caused for example by:		
Unhealthy postures or excessive efforts	5.11	5.22
Inadequate consideration of human hand-arm or foot-leg anatomy	5.3; 5.11	5.22
Neglected use of personal protection equipment	5.9; clause 7	5.8; 5.9; 5.17; clause 7
Inadequate area lighting	5.10	5.18
Mental overload or underload, stress etc.	5.11	5.22
Human error	clause 7	clause 7
Hazard combinations	5.1; 5.3	5.6
Hazards caused by failure of energy supply, breaking down of machines parts and other functional disorders, for example		
Failure of energy supply (of energy and/or control circuits)	5.5	5.8
Unexpected ejection of machine parts or fluids	5.16; 5.21	5.24
Failure, malfunction of control system (unexpected start up, unexpected overrun)	5.5; 5.8	5.14
Errors of fitting	clause 7	clause 7
Overturn, unexpected loss of machine stability	5.8	5.14
Hazards caused by missing and/or incorrectly positioned safety related measures/means, for example:		
All kinds of guards	5.28; clause 7	5.1; 5.2
All kinds of safety related (protection) devices	5.28; 5.29	5.1; 5.14
Start-up and braking devices	5.2; 5.8	5.14
Safety signs and signals	5.1; 5.9; 5.11; 5.23	5.21
All kinds of information or warning devices	5.1; 5.8	5.6
Energy supply disconnecting devices	5.5	5.8
Emergency devices	5.2; 5.15	5.7; 5.18; 5.19
Feeding/removal means of workpieces	5.26	5.10
Essential equipment and accessories for safe adjusting and/or maintaining	5.6	5.5; 5.9
Equipment evacuating gases etc.		5.13; 5.16

5 Safety requirements and/or measures

Machinery shall comply with the safety requirements and/or measures of this clause. In addition, the machines shall be designed according to the principles of EN 292 for hazards relevant but not significant which are not dealt with by this standard.

5.1 Start-up warning devices

5.1.1 Start-up warning devices shall comply with category B specified in clause 5.6 of EN 1034-1:2000+A1:2010.

5.1.2 The control system of start-up warning devices shall comply with at least category 1 of EN 954-1.