

SLOVENSKI STANDARD
SIST EN 1010-3:2003+A1:2009**01-december-2009**

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glfcYj]b'glfcYj 'nUcVXYUj c'dUd]f'U!' "XY. 'FYnUb]_]

Safety of machinery - Safety requirements for the design and construction of printing and paper converting machines - Part 3: Cutting machines

Sicherheit von Maschinen - Sicherheitsanforderungen an Konstruktion und Bau von Druck- und Papierverarbeitungsmaschinen Teil 3: Schneidemaschinen

Sécurité des machines - Prescriptions de sécurité pour la conception et la construction de machines d'impression et de transformation du papier - Partie 3: Coupeuses et massicots

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Ta slovenski standard je istoveten z: EN 1010-3:2002+A1:2009

ICS:

37.100.10	Reprodukcijska oprema	Reproduction equipment
85.100	Oprema za papirno industrijo	Equipment for the paper industry

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 1010-3:2002+A1

October 2009

ICS 37.100.10; 85.100

Supersedes EN 1010-3:2002

English Version

Safety of machinery - Safety requirements for the design and construction of printing and paper converting machines - Part 3: Cutting machines

Sécurité des machines - Prescriptions de sécurité pour la conception et la construction de machines d'impression et de transformation du papier - Partie 3: Coupeuses et massicots

Sicherheit von Maschinen - Sicherheitsanforderungen an Konstruktion und Bau von Druck- und Papierverarbeitungsmaschinen - Teil 3: Schneidemaschinen

This European Standard was approved by CEN on 4 March 2002 and includes Amendment 1 approved by CEN on 15 September 2009.

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



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Foreword

This document (EN 1010-3:2002+A1:2009) has been prepared by 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of an identical text or by endorsement, at the latest by April 2010, and conflicting national standards shall be withdrawn at the latest by April 2010.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 2009-09-15.

This document supersedes EN 1010-3:2002.

The start and finish of text introduced or altered by amendment is indicated in the text by tags $\boxed{A_1}$ $\boxed{A_1}$.

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 the EU Directives.

$\boxed{A_1}$ For relationship with EU Directive(s), see informative Annexes ZA and ZB, which are integral parts of this document. $\boxed{A_1}$

This European Standard consists of the following parts:

- | | | |
|--------|--|---|
| Part 1 | Common requirements | SIST EN 1010-3:2003+A1:2009 |
| Part 2 | Printing and varnishing machines including pre-press machinery | http://standards.iteh.ai/catalog/standards/sist/010-3-2002-049-44aa-a437- |
| Part 3 | Cutting machines | b0acb04aa4ac/sist-en-1010-3-2003a1-2009 |
| Part 4 | Bookbinding, paper converting and finishing machines | |
| Part 5 | Machines for the production of corrugated board and machines for the conversion of flat and corrugated board | |

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this document: 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.

EN 1010-3:2002+A1:2009 (E)**Introduction**

This European Standard is a type C standard as specified in EN 1070.

It contains additional safety requirements and/or deviations from ^{A1} EN 1010-1:2004+A1 ^{A1}.

The scope of this European Standard refers to the relevant machines and the hazards, hazardous situations and hazardous events covered. For machines designed and constructed in accordance with this type C standard, the following applies: if specifications in this type C standard deviate from the specifications in type A or type B standards, the specifications in this type C standard have priority over the specifications of the other standards.

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1 Scope

1.1 This European Standard applies to cutting machines used in paper converting:

- guillotines;
- three-knife trimmers;
- index cutting machines;
- trimmers;
- rotary cutters;
- round cornering machines;
- label punching machines.

This European Standard is only applicable in conjunction with [EN 1010-1:2004+A1](#). Both parts together identify all significant hazards relevant to the cutting machines when they are used as intended and under the conditions foreseen by the manufacturer (see Clause 4). The specific requirements of this European Standard take precedence over respective requirements of [EN 1010-1:2004+A1](#).

This European Standard is not applicable to cutting machines manufactured before the publication of this European Standard by CEN.

1.2 This standard does not apply to winder-slitters or sheeters (see EN 1034-1, EN 1034-3, prEN 1034-5).

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at 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 (including amendments).

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

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

EN 953, *Safety of machinery - Guards - General requirements for the design and construction of fixed and movable guards.*

[EN 1010-1:2004+A1](#), *Safety of machinery – Safety requirements for the design and construction of printing and paper converting machines – Part 1: Common requirements*

.EN 1050:1996, *Safety of machinery – Principles of risk assessment.*

EN 1070, *Safety of machinery – Terminology.*

EN 1080, *Safety of machinery - Interlocking devices associated with guards - Principles for design and selection.*

3 Definitions, symbols and abbreviations

For the purposes of this European Standard, the terms and definitions in EN 1070, [EN 1010-1:2004+A1](#) and the following apply:

3.1

knives

cutting tools with translational movement

3.2

EN 1010-3:2002+A1:2009 (E)**rotary knives**

circular knives with rotational movement

3.3**dynamic forces**

maximum forces occurring measured by a spring constant as described in Clause 6

3.4**guillotines**

machines using a knife for cutting stacks of paper sheets or similar substrates

-

3.5**feeding tables**

tables for feeding the material to be cut to the guillotine

3.6**three-knife trimmers, trimmers**

cutting machines for cutting two or three sides of book blocks, stationery, magazines with the material fed manually or automatically

3.7**rotary cutters**

machines using rotary knives for cutting book blocks, stationery, magazines with automatic feeding

3.8**index cutting machines**

machines for making index cuts on book blocks and stationery and for printing indexes

3.9**round cornering machines**

machines for cutting round corners on book blocks and stationery

3.10**label punching machines**

machines for cutting out labels

3.11**ESPD**

electro-sensitive protective device

4 List of significant hazards

4.1 This clause contains all the significant hazards, as far as they are dealt with in this standard, identified by the risk assessment method as being significant for this type of machinery and which require action to eliminate or reduce the risk. When carrying out the risk assessment, the machine designer shall check whether the list of hazards in Table 1 is complete and applicable with respect to the particular machine.

4.2 It is of great importance that the user of this standard, e.g. the designer, manufacturer or supplier, takes into account the following principal aspects in accordance with EN 1050:

- the intended use of the machine including setting-up (making ready), cleaning and maintenance, including foreseeable misuse;
- identification of the significant hazards.

Table 1 - Significant hazards, danger zones, safety measures

Significant hazards	Danger zone	Safety measures: reference to clauses in		
		this standard	EN 292-1	EN 1050:1996 Annex A
Mechanical hazards crushing shearing cutting trapping drawing-in impact	Guillotines - knife/clamping bar danger zone - knife - clamping bar - backgauge - automatic mode Integral feeding and delivery equipment for guillotines - feeding table - rear table of guillotine - gripper - delivery table Index cutting machines - feeding and delivery - automatic feeding and delivery - knives Three-knife trimmers, trimmers - knives - manual feeding - automatic mode Rotary cutters - rotary knives Round cornering machines - knives, saws Label punching machines - punching knife - waste opening	5.2.3, 5.2.4 5.2.5, 5.2.7, 5.2.10 5.2.6, 5.2.8 5.2.9 5.2.13 5.3.1, 5.3.4, 5.3.5 5.3.2 5.3.3 5.3.6 to 5.3.11 5.4.1 5.4.2 5.4.3.1, 5.4.3.2 5.5.1, 5.5.3, 5.5.4 5.5.2 5.5.5 5.6.1, 5.6.2 5.7.1 to 5.7.3 5.8.1, 5.8.2, 5.8.4	4.2.1	1
Neglecting ergonomic principles in machine design unhealthy body postures	Guillotines - knock-up devices - optical cutting line indicators	5.2.11 5.2.12	4.9	8
Faults, malfunctions in the control systems faults in safety-related circuits	Guillotines - knife and clamping bar, ESPDs and their related signal processing Label punching machines - punching area	5.2.1, 5.2.2 5.8.3		10

EN 1010-3:2002+A1:2009 (E)

5 Safety requirements and/or measures

5.1 General

Machinery shall comply with the safety requirements and/or protective measures of this clause. In addition, the machine shall be designed according to the principles of EN 292 for hazards that are relevant but not significant and not dealt with by this European Standard (e.g. sharp edges). The common requirements of EN 1010-1:2004+A1 shall also be taken into account.

5.2 Guillotines

5.2.1 Control systems

The use of guillotines requires routine and regular access to the danger zone to be provided and therefore the requirements specified in 5.2.6.2, 5.2.8.3, 5.2.9.2, and 5.2.11.3 of EN 1010-1:2004+A1 shall be adhered to.

NOTE Safety-related parts of the control system include emergency stop, two-hand controls, ESPDs, safety position switches and their related signal processing.

5.2.2 ESPDs

- the requirements for ESPDs according to 5.2.9.2 of EN 1010-1:2004+A1 shall be met. ESPDs shall be provided with a re-start interlock.

If an interruption of the ESPD is due to body access, the cutting cycle shall be restarted by an intentional action;

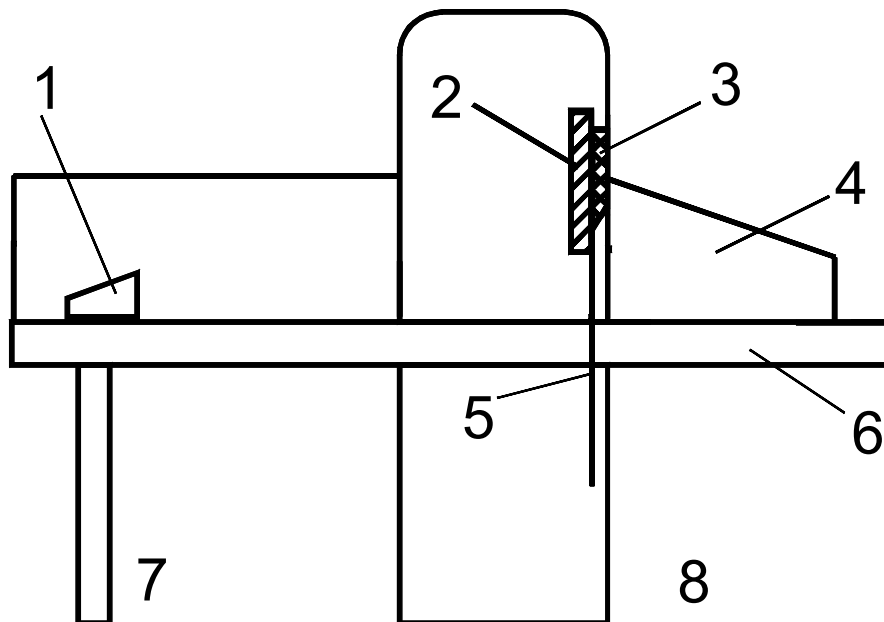
- the minimum distance between the ESPD and the cutting plane is calculated as indicated in annex A based on a resolution capability of less than or equal to 40 mm, measured when projected onto the centre point between the machine table and the lower edge of the clamping bar (see Figures 2 and 3),
- the distance between one ESPD beam and another - measured between the respective centres of the optical systems - shall not exceed 55 mm with a resolution capability of less than or equal 40 mm.

5.2.3 Operating side

On guillotines, guards and/or safety devices shall prevent access to knife and clamping bar danger points from the front (operating) side.

These requirements are met by

- an interlocking guard according to EN 953 and EN 1088 without side openings; any openings on the front side of the guard shall be designed in accordance with EN 294 (see Figure 1).

**Key**

- 1 Backgauge
- 2 Clamping bar
- 3 Knife
- 4 Interlocking guard
- 5 Cutting plane
- 6 Front of table
- 7 Rear of machine
- 8 Front of machine

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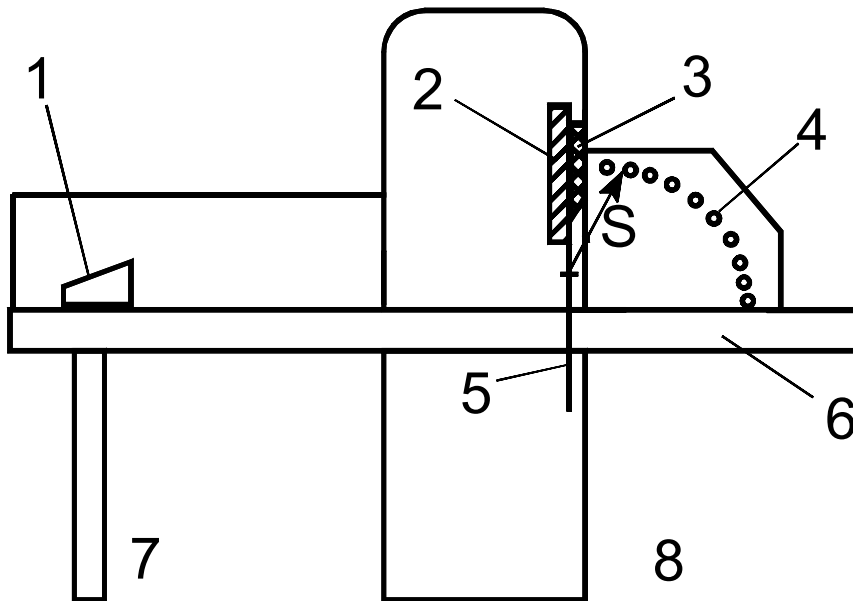
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Figure 1 — Interlocking guard on front side

or

- ESPDs extending to the machine table without side openings. The arrangement of the ESPD shall be as shown in Figure 2. The front table shall be at least $S + 30$ mm long, measured from the cutting plane (S is the safety distance of the ESPD).

EN 1010-3:2002+A1:2009 (E)

**Key**

- 1 Backgauge
- 2 Clamping bar
- 3 Knife
- 4 ESPD
- 5 Cutting plane
- 6 Front of table
- 7 Rear of machine
- 8 Front of machine

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Figure 2 — ESPDs on guillotine

or

- a two-hand control and an ESPD. The control elements of the two-hand control shall be at least 550 mm apart and mounted on the end of the front of table. Positioning of the ESPD shall be as shown in Figure 3.