

**Masinate ohutus. Ohutusnõuded  
paberivalmistamis- ja viimistlusmasinate  
kavandamisele ja valmistamisele. Osa 1: Üldised  
nõuded**

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

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 1010-1:2005+A1:2010 sisaldab Euroopa standardi EN 1010-1:2004+A1:2010 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 31.12.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 08.12.2010.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 1010-1:2005+A1:2010 consists of the English text of the European standard EN 1010-1:2004+A1:2010.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 31.12.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text 08.12.2010.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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ICS 37.100.10, 85.100

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English Version

## Safety of machinery - Safety requirements for the design and construction of printing and paper converting machines - Part 1: Common requirements

Sécurité des machines - Prescriptions de sécurité pour la conception et la construction de machines d'impression et de transformation du papier - Partie 1: Prescriptions communes

Sicherheit von Maschinen - Sicherheitsanforderungen an Konstruktion und Bau von Druck- und Papierverarbeitungsmaschinen - Teil 1: Gemeinsame Anforderungen

This European Standard was approved by CEN on 7 June 2004 and includes Amendment 1 approved by CEN on 30 October 2010.

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## Foreword

This document (EN 1010-1:2004+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 June 2011, and conflicting national standards shall be withdrawn at the latest by June 2011.

This document includes Amendment 1, approved by CEN on 2010-10-30.

This document supersedes EN 1010-1:2004.

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

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 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.

$\boxed{A_1}$  This part of the standard defines the common safety requirements for all kinds of printing and paper converting machines and related common devices and is intended to be used in conjunction with another relevant part of the EN 1010 series. The specific requirements specified in Part 2 and following parts of EN 1010 supplement or amend the requirements of Part 1 and take precedence over the respective requirements in EN 1010-1.

NOTE In addition, where a machine is not covered by a specific part of this standard, Part 1 of EN 1010 may be used in conjunction with a risk assessment to establish an approach for dealing with the relevant risks. However, in this situation this standard will not provide a presumption of conformity with the Essential Requirements.  $\boxed{A_1}$

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 type C standard as stated in  EN ISO 12100:2003 .

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this document.

For machines that have been designed and built according to the provisions of this C standard, the following stipulation applies: When provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence over the provisions of the other standards.

This document consists of the following parts:

- Part 1 Common requirements
- Part 2 Printing and varnishing machines including pre-press machinery
- Part 3 Cutting machines
- 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.

## 1 Scope

1.1 This document applies to:

- printing machines for printing on paper and similar materials, including screen printing presses; equipment used in the preparation of the printing process and additional equipment on printing machines are also considered to be printing machines. This standard also covers machinery used for the handling of paper, products, printing formes and inks (before and after the printing process) as well as machinery for cleaning printing formes and checking the print quality (auxiliary printing machinery).
- paper converting machines, i. e. machines to process, convert or finish paper, board and similar materials which are processed, converted or finished in a similar manner.

NOTE Similar substrates are, for example, board, corrugated board, plastic film, aluminium foil, sheet metal and photographic paper.

**1.2** This document deals with all common significant hazards relevant to printing and paper converting machinery when they are used as intended and under the conditions foreseen by the manufacturer (see clause 4). ~~A1~~ deleted text ~~A1~~

**1.3** This document is not applicable to printing and paper converting machines which are manufactured before the date of publication of this document by CEN.

**1.4** This document does not apply to:

- winder-slitters and sheeters in paper finishing (sheeters with unwinders) (see EN 1034-1:2000, EN 1034-3:2000, ~~A1~~ EN 1034-5:2005 ~~A1~~);
- office-type collating machines equipped with friction feeders;
- mail processing machines;
- machines used for filling packages (such as machines for shaping, filling, and closing the package);
- textile printing presses.

## 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.

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

EN 349:1993, *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body*

~~A1~~ deleted text ~~A1~~

EN 574:1996, *Safety of machinery — Two-hand control devices — Functional aspects — Principles for design*

EN 953:1997, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards*

~~A1~~ deleted text ~~A1~~

EN 999:1998, *Safety of machinery — The positioning of protective equipment in respect of approach speeds of parts for the human body*

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

~~A1~~ deleted text ~~A1~~

EN 1088:1995, *Safety of machinery — Interlocking devices associated with guards — Principles for design and selection*

~~A1~~ EN 1127-1:2007, *Explosive atmospheres — Explosion prevention and protection — Part 1: Basic concepts and methodology* ~~A1~~

EN 1760-1:1997:1997, *Safety of machinery — Pressure sensitive devices — Part 1: General principles for the design and testing of pressure sensitive mats and pressure sensitive floors*

EN 1760-2:2001, *Safety of machinery — Pressure sensitive devices — Part 2: General principles for the design and testing of pressure sensitive edges and pressure sensitive bars*

EN 12198-1:2000, *Safety of machinery — Assessment and reduction of risks arising from radiation emitted by machinery — Part 1: General principles*

**A1** deleted text **A1**

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

EN 13463-1:2001, *Non-electrical equipment for potentially explosive atmospheres — Part 1: Basic method and requirements*

EN 13463-5:2003, *Non-electrical equipment intended for use in potentially explosive atmospheres — Part 5: Protection by constructional safety "c"*

**A1** EN ISO 4871:2009, *Acoustics — Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996)* **A1**

**A1** EN ISO 7731:2008, *Ergonomics — Danger signals for public and work areas — Auditory danger signals (ISO 7731:2003)* **A1**

**A1** EN ISO 11553-1:2008, *Safety of machinery — Laser processing machines — Part 1: General safety requirements (ISO 11553-1:2005)* **A1**

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

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

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

EN ISO 14122-1:2001, *Safety of machinery — Permanent means of access to machines and industrial plants — Part 1: Choice of a fixed means of access between two levels (ISO 14122-1:2001)*

EN ISO 14122-2:2001, *Safety of machinery — Means of permanent access to machines and industrial plants — Part 2: Working platforms and gangways (ISO 14122-2:2001)*

EN ISO 14122-3:2001, *Safety of machinery — Means of permanent access to machines and industrial plants — Part 3: Stairways, stepladders and guard-rails (ISO 14122-3:2001)*

**A1** EN ISO 14122-4:2004, *Safety of machinery — Means of permanent access to machines and industrial plants — Part 4: Fixed ladders (ISO 14122-4:2004)* **A1**

**A1** deleted text **A1**

**A1** EN 60079-0:2009, *Explosive atmospheres — Part 0: Equipment — General requirements (IEC 60079-0:2007)* **A1**

**A1** EN 60079-1:2007, *Explosive atmospheres — Part 1: Equipment protection by flameproof enclosures "d" (IEC 60079-1:2007)* **A1**

**A1** EN 60079-2:2007, *Explosive atmospheres — Part 2: Equipment protection by pressurized enclosure "p" (IEC 60079-2:2007)* **A1**

**A1** EN 60079-5:2007, *Explosive atmospheres — Part 5: Equipment protection by powder filling "q" (IEC 60079-5:2007)* **A1**

**A1** EN 60079-6:2007, *Explosive atmospheres — Part 6: Equipment protection by oil immersion "o" (IEC 60079-6:2007)* **A1**

**A1** EN 60079-7:2007, *Explosive atmospheres — Part 7: Equipment protection by increased safety "e" (IEC 60079-7:2006)* **A1**

**A1** EN 60079-10-1:2009, *Explosive atmospheres — Part 10-1: Classification of areas — Explosive gas atmospheres (IEC 60079-10-1:2008)*

EN 60079-10-2:2009, *Explosive atmospheres — Part 10-2: Classification of areas — Combustible dust atmospheres (IEC 60079-10-2:2009)* **A1**

**A1** EN 60079-11:2007, *Explosive atmospheres — Part 11: Equipment protection by intrinsic safety "i" (IEC 60079-11:2006)* **A1**

**A1** EN 60079-14:2008, *Explosive atmospheres — Part 14: Electrical installations design, selection and erection (IEC 60079-14:2007)* **A1**

**A1** EN 60079-25:2004, *Electrical apparatus for explosive gas atmospheres — Part 25: Intrinsically safe systems (IEC 60079-25:2003)* **A1**

**A1** EN 60079-26:2007, *Explosive atmospheres — Part 26: Equipment with equipment protection level (EPL) Ga (IEC 60079-26:2006)*

EN 60079-28:2007, *Explosive atmospheres — Part 28: Protection of equipment and transmission systems using optical radiation (IEC 60079-28:2006)* **A1**

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

EN 60825-1:1994, *Safety of laser products — Part 1: Equipment classification, requirements and user's guide*

EN 61000-6-2:2001 *Electromagnetic compatibility (EMC) — Part 6-2: Generic standards; Immunity for industrial environment*

EN 61010-1:2001, *Safety requirements for electrical equipment for measurement, control and laboratory use — Part 1: General requirements (IEC 61010-1:2001)*

**A1** EN 61241-14:2004, *Electrical apparatus for use in the presence of combustible dust — Part 14: Selection and installation (IEC 61241-14:2004)* **A1**

**A1** EN 61241-17:2005, *Electrical apparatus for use in the presence of combustible dust — Part 17: Inspection and maintenance of electrical installations in hazardous areas (other than mines) (IEC 61241-17:2005)* **A1**

EN 61310-1:1995, *Safety of machinery — Indication, marking and actuation — Part 1: Requirements for visual, auditory and tactile signals*

EN 61310-2:1995, *Safety of machinery — Indication, marking and actuation — Part 2: Requirements for marking*

EN 61496-1:2004, *Safety of machinery — Electro-sensitive protective equipment — Part 1: General requirements and tests (IEC 61496-1:2004, modified)*

CLC/TS 61496-2:2006, *Safety of machinery — Electro-sensitive protective equipment — Part 2: Particular requirements for equipment using active opto-electronic protective devices (AOPDs)*

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

CLC/TR 50404:2003, *Electrostatics — Code of practice for the avoidance of hazards due to static electricity*

### 3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN ISO 12100-1:2003 and the following apply.

#### 3.1

##### **danger points**

danger points are defined locations in the danger zone of machines where persons can be injured by movements of

- parts of machines;
- tools of machines or parts of tools;
- workpieces or parts of workpieces or
- materials being processed.

NOTE Danger points can exist, for example, on gear, chain and worm drives, V-belt, flat belt, cord and rope drives, pulling and supporting elements on continuous conveyors, spoke wheels and fly wheels, shafts and shaft ends, rollers, slides, push rods and similar parts, tools and clamping devices.

Particular points of danger are:

- crushing and shearing points;
- trapping points;
- inrunning nips;
- cutting, punching and impact points.

#### 3.2

##### **inrunning nips**

nips caused by rotating rollers, cylinders, rolls or drums creating the hazard for parts of the body or the whole body to be drawn in. The risks exist between:

- a) two counter-rotating rollers, powered or non-powered;
- b) one rotating roller and an adjacent fixed part of the machine;