

SVENSK STANDARD

SS-EN 1010-1:2004+A1:2010



Fastställt/Approved: 2010-12-20
Publicerad/Published: 2011-01-12
Utgåva/Edition: 1
Språk/Language: engelska/English
ICS: 37.100.10; 85.100

Maskinsäkerhet – Säkerhetskrav för konstruktion och tillverkning av maskiner för tryckning, bokbinderi och förpackningstillverkning – Del 1: Allmänna krav

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

This preview is downloaded from www.sis.se. Buy the entire standard via <https://www.sis.se/std-76178>

Standarder får världen att fungera

SIS (Swedish Standards Institute) är en fristående ideell förening med medlemmar från både privat och offentlig sektor. Vi är en del av det europeiska och globala nätverk som utarbetar internationella standarder. Standarder är dokumenterad kunskap utvecklad av framstående aktörer inom industri, näringsliv och samhälle och befrämjar handel över gränser, bidrar till att processer och produkter blir säkrare samt effektiviserar din verksamhet.

Delta och påverka

Som medlem i SIS har du möjlighet att påverka framtida standarder inom ditt område på nationell, europeisk och global nivå. Du får samtidigt tillgång till tidig information om utvecklingen inom din bransch.

Ta del av det färdiga arbetet

Vi erbjuder våra kunder allt som rör standarder och deras tillämpning. Hos oss kan du köpa alla publikationer du behöver – allt från enskilda standarder, tekniska rapporter och standardpaket till handböcker och onlinetjänster. Genom vår webbtjänst e-nav får du tillgång till ett lättnavigerat bibliotek där alla standarder som är aktuella för ditt företag finns tillgängliga. Standarder och handböcker är källor till kunskap. Vi säljer dem.

Utveckla din kompetens och lyckas bättre i ditt arbete

Hos SIS kan du gå öppna eller företagsinterna utbildningar kring innehåll och tillämpning av standarder. Genom vår närhet till den internationella utvecklingen och ISO får du rätt kunskap i rätt tid, direkt från källan. Med vår kunskap om standarders möjligheter hjälper vi våra kunder att skapa verklig nytta och lönsamhet i sina verksamheter.

Vill du veta mer om SIS eller hur standarder kan effektivisera din verksamhet är du välkommen in på www.sis.se eller ta kontakt med oss på tel 08-555 523 00.



Standards make the world go round

SIS (Swedish Standards Institute) is an independent non-profit organisation with members from both the private and public sectors. We are part of the European and global network that draws up international standards. Standards consist of documented knowledge developed by prominent actors within the industry, business world and society. They promote cross-border trade, they help to make processes and products safer and they streamline your organisation.

Take part and have influence

As a member of SIS you will have the possibility to participate in standardization activities on national, European and global level. The membership in SIS will give you the opportunity to influence future standards and gain access to early stage information about developments within your field.

Get to know the finished work

We offer our customers everything in connection with standards and their application. You can purchase all the publications you need from us - everything from individual standards, technical reports and standard packages through to manuals and online services. Our web service e-nav gives you access to an easy-to-navigate library where all standards that are relevant to your company are available. Standards and manuals are sources of knowledge. We sell them.

Increase understanding and improve perception

With SIS you can undergo either shared or in-house training in the content and application of standards. Thanks to our proximity to international development and ISO you receive the right knowledge at the right time, direct from the source. With our knowledge about the potential of standards, we assist our customers in creating tangible benefit and profitability in their organisations.

If you want to know more about SIS, or how standards can streamline your organisation, please visit www.sis.se or contact us on phone +46 (0)8-555 523 00



Europastandarden EN 1010-1:2004+A1:2010 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 1010-1:2004+A1:2010.

Denna standard ersätter SS-EN 1010-1:2004, utgåva 1.

The European Standard EN 1010-1:2004+A1:2010 has the status of a Swedish Standard. This document contains the official version of EN 1010-1:2004+A1:2010.

This standard supersedes the Swedish Standard SS-EN 1010-1:2004, edition 1.

© Copyright/Upphovsrätten till denna produkt tillhör SIS, Swedish Standards Institute, Stockholm, Sverige. Användningen av denna produkt regleras av slutanvändarlicensen som återfinns i denna produkt, se standardens sista sidor.

© Copyright SIS, Swedish Standards Institute, Stockholm, Sweden. All rights reserved. The use of this product is governed by the end-user licence for this product. You will find the licence in the end of this document.

Uppllysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00. Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna uppllysningar om svensk och utländsk standard.

Information about the content of the standard is available from the Swedish Standards Institute (SIS), telephone +46 8 555 520 00. Standards may be ordered from SIS Förlag AB, who can also provide general information about Swedish and foreign standards.

Denna standard är framtagen av kommittén för Tryckeri- och pappersmaskiner, SIS/TK 253.

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på www.sis.se - där hittar du mer information.

EUROPEAN STANDARD

EN 1010-1:2004+A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2010

ICS 37.100.10; 85.100

Supersedes EN 1010-1:2004

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.

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-CENELEC 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-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....	4
Introduction	5
1 Scope	5
2 Normative references	6
3 Terms and definitions	9
4 List of significant hazards	11
5 Safety requirements and/or protective measures	14
5.1 General.....	14
5.2 Requirements common to printing and paper converting machines	14
5.2.1 Safeguarding of danger points.....	14
5.2.2 Guards and interlocks.....	16
5.2.3 Devices for setting-up, cleaning, trouble-shooting during the work process and maintenance	17
5.2.4 Explosion prevention and protection	19
5.2.5 Electrical equipment.....	21
5.2.6 A1 Control systems A1	22
5.2.7 Indicators, marking, actuators, prestart warning devices.....	24
5.2.8 Two-hand controls.....	25
5.2.9 Electrosensitive protective devices (ESPDs)	25
5.2.10 Pressure sensitive mats, trip devices	25
5.2.11 Safety position switches.....	26
5.2.12 Work platforms, access stairs, passageways and raised workplaces.....	27
5.2.13 A1 Stability during all phases of use (transportation, assembly and dismantling) A1	28
5.2.14 High contact temperatures	29
5.2.15 Noise	29
5.2.16 Radiation hazards	29
5.2.17 Immunity to electromagnetic disturbances	30
5.3 Common devices	30
5.3.1 Stationary knives	30
5.3.2 Rotary tools	30
5.3.3 Dangerous tools.....	31
5.3.4 Feeding units, delivery units (pile lifting and lowering devices).....	31
5.3.5 Reel unwinding and rewinding devices for webs.....	35
6 Verification of the safety requirements and/or protective measures.....	37
7 Information for use	41
7.1 Minimum requirements for machine markings.....	41
7.2 Instruction handbook	42
7.3 A1 Warning signs and labels A1	43
Annex A (informative) Classification of zones for printing presses and finishing machines (relating to 5.2.4)	44
A.1 Rotary web gravure printing machines	44
A.2 Sheet-fed rotary gravure printing machines.....	44
A.3 Rotary web flexographic printing machines, wallpaper printing machines.....	44
A.4 Screen printing machines for printing on sheets, web or three-dimensional objects.....	45
A.5 Rotary and flatbed film printing machines.....	45
A.6 Machines for printing imitation leather and film	45

A.7	Wash-out machines and washing machines in which flammable liquids with flash points below 55 °C are used.....	45
A.8	Roller coating units with closed side frames reaching down to floor level	46
A.9	Roller coaters with side frames with cut-outs or with side frames that do not reach to floor level.....	46
Annex B	(normative) Audible prestart warning devices	47
B.1	Application	47
B.2	Control arrangement.....	47
B.3	Timing chart	47
Annex C	(informative) Risk analysis relating to the pitch angle of access stairs.....	49
Annex D	(informative) Example of layout of an instruction handbook	51
D.1	Information relating to the machine	51
D.2	Information relating to safety	51
D.3	Information relating to transport, handling and storage of the machine	51
D.4	Installation, commissioning, removal	51
D.5	Information relating to the use of the machine	52
D.6	Information relating to maintenance of the machine.....	52
Annex E	(informative) A_1 Noise A_1.....	53
Annex ZA	(informative) A_1 Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC A_1	54
Annex ZB	(informative) Relationship between this European Standard and the Essential Requirements of EU Directive 94/9/EC	55
	Bibliography.....	57

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 \square_{A1} \square_{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.

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.

\square_{A1} 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. \square_{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, 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}