

**Masinate ohutus. Ohutusnõuded
paberivalmistamis- ja
viimistlusmasinate kavandamisele ja
valmistamisele. Osa 6: Kalandrid**

Safety of machinery - Safety requirements for the
design and construction of paper making and
finishing machines - Part 6: Calender

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 1034-6:2006 sisaldab Euroopa standardi EN 1034-6:2005 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 27.02.2006 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 1034-6:2006 consists of the English text of the European standard EN 1034-6:2005.</p> <p>This document is endorsed on 27.02.2006 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala:</p> <p>This European Standard applies to calenders intended for use in paper making and finishing and shall be used together with EN 1034-1:2000. It deals with all significant hazards listed in clause 4. Related safety requirements and/or measures are described in clause 5.</p>	<p>Scope:</p> <p>This European Standard applies to calenders intended for use in paper making and finishing and shall be used together with EN 1034-1:2000. It deals with all significant hazards listed in clause 4. Related safety requirements and/or measures are described in clause 5.</p>
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ICS 85.100

Võtmesõnad:

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English Version

**Safety of machinery - Safety requirements for the design and
construction of paper making and finishing machines - Part 6:
Calender**

Sécurité des machines - Exigences techniques de sécurité
pour la conception et la construction de machines de
fabrication et de finition du papier - Partie 6: Calandre

Sicherheit von Maschinen - Sicherheitstechnische
Anforderungen für Konstruktion und Bau von Maschinen
der Papierherstellung und Ausrüstung - Teil 6: Kalandrieren

This European Standard was approved by CEN on 4 November 2005.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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Foreword

This document (EN 1034-6:2005) 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 2006, and conflicting national standards shall be withdrawn at the latest by June 2006.

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 Annex ZA, which is an integral part of this document.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

This European Standard is a type C standard as stated in EN ISO 12100-1:2003.

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

For machines that have been designed and built according to the provisions of this type 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 or from provisions made in EN 1034-1:2000, the provisions of this type C standard take precedence over the provisions of the other standards.

1 Scope

This European Standard applies to calenders intended for use in paper making and finishing and shall be used together with EN 1034-1:2000. It deals with all significant hazards listed in clause 4. Related safety requirements and/or measures are described in clause 5.

It does not cover hazards connected with lifting operations required for changing rolls, inserting reels into the unwinding unit, removal of reels from the winding unit and heating systems for heating calender rolls..

This European Standard is not applicable to calenders that have been manufactured before the date of publication of this standard.

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.

prEN 81-41:2004, *Safety rules for the construction and installation of lifts — Special lifts for the transport of persons and goods — Part 41: Vertical lifting platforms intended for use by persons with impaired mobility*

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*

EN 418:1992, *Safety of machinery — Emergency stop equipment — Functional aspects — Principles for design*

EN 563:1994, *Safety of machinery — Temperatures of touchable surfaces — Ergonomics data to establish temperature limit values for hot surfaces*

EN 894-1:1997, *Safety of machinery — Ergonomic requirements for the design of displays and control actuators — Part 1: General principles for human interactions for displays and control actuators*

EN 894-2:1997, *Safety of machinery — Ergonomic requirements for the design of displays and control actuators — Part 2: Displays*

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

EN 954-1:1996, *Safety of machinery — Safety related parts of control systems — Part 1: General principles for design*

EN 982:1996, *Safety of machinery — Safety requirements for fluid power systems and their components — Hydraulics*

EN 983:1996, *Safety of machinery — Safety requirements for fluid power systems and their components — Pneumatics*

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

EN 1034-1:2000, *Safety of machinery — Safety requirements for the design and construction of paper making and finishing machines - Part 1: Common requirements*

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

EN 1050:1996, *Safety of machinery — Principles for risk assessment*

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

EN 1127-1:1997, *Explosive atmospheres — Explosion prevention and protection — Part 1: Basic concepts and methodology*

EN 1760-1:1997, *Safety of machinery — Pressure-sensitive safety 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 safety devices — Part 2: General principles for the design and testing of pressure-sensitive edges and pressure-sensitive bars*

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

EN 60204-1:1997, *Safety of machinery — Electrical equipment — Part 1: General requirements (IEC 60204-1:1997)*

EN 60024-11:2000, *Safety of machinery — Electrical equipment — Part 11: High-voltage equipment for voltages above 1 000 V AC or 1 500 V DC, but not more than 36 kV (IEC 60204-11:2000)*

EN 61000-6-2:2001, *Electromagnetic compatibility (EMC) — Part 6-2: Generic standard — Immunity — Part 2: Industrial environment (IEC 61000-6-2:1999, modified)*

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

prEN 61496-2:2005, *Safety of machinery — Electro-sensitive protective equipment — Part 2: Particular requirements for equipment using active opto-electronic protective devices (AOPDs) (IEC 61496-2:2005)*

EN ISO 11957:1996, *Acoustics — Determination of sound insulation performance of cabins — Laboratory and in situ measurements (ISO 11957:1996)*

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 and specifications (ISO 12100-2:2003)*

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 — Permanent means of access to machines and industrial plants — Part 2: Working platforms and gangways (ISO 14122-2:2001)*

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1034-1:2000, EN ISO 12100-1:2003, and the following terms and definitions apply:

3.1

calender

machine using two or more adjacent rolls for glazing, smoothing, calibrating or embossing of paper, including the winding unit and unwinding unit if fitted, see 3.2

3.2

off-line calender

calender with winding and unwinding unit. An example is illustrated in Figure 1

3.3

on-line calender

calender integrated into a paper making or coating machine. An example is illustrated in Figure 2

3.4

sheet calender

calender used for glazing individual sheets of paper

3.5

lifting platform

lifting device integrated into a calender for people to carry out specific tasks, e.g. web threading, cleaning, maintenance. Often two lifting platforms are provided on the roll stack