

**Müra mõõtmise meetodid trükkimise,  
paberi muundamise ja paberi  
valmistamise masinate puhul ning  
lisaseadmete puhul. Täpsusastmed 2 ja  
3**

Noise measurement methods for printing, paper  
converting, paper making machines and auxiliary  
equipment - Accuracy grades 2 and 3

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 13023:2003 sisaldab Euroopa standardi EN 13023:2003 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 14.08.2003 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 13023:2003 consists of the English text of the European standard EN 13023:2003.</p> <p>This document is endorsed on 14.08.2003 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>
--	---

<p><b>Käsitlusala:</b></p> <p>This standard specifies all the information necessary to carry out efficiently and under standardized conditions the determination, declaration and verification of airborne noise emission from printing and paper converting machines covered by the EN 1010 series and from paper making and finishing machines covered by the EN 1034 series. It specifies noise measurement methods and installation and operating conditions to be used for the test</p>	<p><b>Scope:</b></p> <p>This standard specifies all the information necessary to carry out efficiently and under standardized conditions the determination, declaration and verification of airborne noise emission from printing and paper converting machines covered by the EN 1010 series and from paper making and finishing machines covered by the EN 1034 series. It specifies noise measurement methods and installation and operating conditions to be used for the test</p>
--	--

**ICS** 17.140.20, 37.100.10, 85.100

**Võtmesõnad:** acoustic testing, acoustics, definitions, equipment, manufacture of paper, measuring instruments, measuring techniques, noise emissions, noise measurements, paper converting machinery, precision, printing presses, testing

ICS 17.140.20; 37.100.10; 85.100

English version

Noise measurement methods for printing, paper converting,  
paper making machines and auxiliary equipment - Accuracy  
grades 2 and 3

Méthodes de mesurage du bruit émis par les machines  
d'impression, de transformation, de fabrication et de finition  
du papier - Classes de précision 2 et 3

Geräuschmessverfahren für Druck- und  
Papierverarbeitungs-, Papierherstellungs- und  
Ausrüstungsmaschinen - Genauigkeitsklassen 2 und 3

This European Standard was approved by CEN on 24 March 2003.

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 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 Management Centre has the same status as the official versions.

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



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

# Contents

Page

Foreword .....	4
1 Scope .....	4
2 Normative references .....	4
3 Terms and definitions .....	5
4 Description of machines .....	6
5 Emission sound pressure level determination .....	6
6 Sound power level determination .....	6
7 Assembly and installation conditions .....	7
8 Operating conditions .....	7
9 Measurement uncertainty .....	7
10 Information to be recorded .....	8
11 Information to be reported .....	8
12 Declaration and verification of noise emission values .....	8
Annex A (normative) Machines for processing raw material .....	10
Annex B (normative) Machines for the preparation of wood pulp .....	11
Annex C (normative) Machines for the preparation of cellulose .....	12
Annex D (normative) Machines for the preparation of stock .....	13
D.1 Disintegrators .....	13
D.2 Pulpers .....	13
D.3 Refiners .....	14
D.4 Hydrocyclones .....	14
D.5 Vibration screens .....	15
D.6 Pressure screens .....	15
D.7 Chests .....	16
Annex E (normative) Paper, board and de-watering machines .....	17
Annex F (normative) Finishing machines .....	18
F.1 Winders and slitters .....	18
F.2 Sheeter-sorters, sheet cutters .....	18
F.3 Calenders .....	19
F.4 Coaters .....	20
F.5 Conditioners .....	20
F.6 Sheet packaging machines .....	20
F.7 Reel packaging machines .....	21
Annex G (normative) Machines for production of printing formes .....	22
Annex H (normative) Printing presses .....	23
H.1 Proofing presses .....	23
H.1.1 Offset proofing presses .....	23
H.1.2 Web-fed proofing presses for gravure and flexo-printing .....	23
H.2 Sheet-fed printing presses .....	24
H.2.1 Automatic platen machines .....	24
H.2.2 Sheet-fed rotary printing presses .....	24
H.2.3 Sheet-fed screen printing presses .....	24

H.3	Tube printing machines.....	25
H.4	Web-fed rotary printing presses .....	25
H.4.1	Web-fed rotary printing presses — all printing methods (excluding: continuous form presses, combined label printing and punching machines).....	25
H.4.2	Continuous form printing presses.....	26
H.4.3	Label printing and die cutting machines, combined.....	26
Annex J	(normative) Paper converting machines.....	27
J.1	Bundling machines.....	27
J.2	Bending and folding machines .....	28
J.2.1	Bending, scoring and creasing machines rotary bending, grooving and buckling machines, scoring and creasing machines.....	28
J.2.2	Sheet-fed folding machines .....	28
J.2.3	Folding machines for sanitary items (web-fed).....	30
J.3	Binding and finishing machines .....	30
J.3.1	Stitching, corner staying and inserting machines .....	30
J.3.2	Collating, web joining and inserting machines .....	31
J.4	Gluing machines and equipment.....	33
J.4.1	Gluing machines, gluing equipment and auxiliary equipment for paper converting .....	33
J.4.2	Gluing machines, gluing equipment and auxiliary equipment for cardboard processing .....	34
J.4.3	Gluing machines, gluing equipment and auxiliary equipment for book production .....	34
J.5	Paper bag, sack and envelope making machines for paper and foil.....	35
J.6	Presses .....	37
J.6.1	Presses for book binding .....	37
J.6.2	Forming presses for paper, board and foil.....	37
J.7	Cutting machines.....	38
J.7.1	Sheet-fed cutting machines .....	38
J.7.2	Rotary cutters .....	39
J.7.3	Toilet paper winding machine, tissue winding machine.....	39
J.7.4	Cutting machines for book making and paper, cardboard and foil processing .....	40
J.8	Punching machines.....	41
J.8.1	Punching machines for book production .....	41
J.8.2	Punching machines for paper and cardboard converting .....	41
J.9	Coating, finishing and drying equipment for paper, board and foil .....	48
J.9.1	Coating and finishing machines .....	48
J.9.2	Continuous flow dryers for paper, board and foil.....	49
J.10	Corrugated board production machines .....	50
J.11	Auxiliary equipment.....	51
J.11.1	Pile processing machines .....	51
J.11.2	Tube processing and finishing machines .....	51
J.11.3	Jogging machines .....	52
J.11.4	Bridging machines .....	52
J.11.5	Back rounding machines .....	53
J.11.6	Paper drills.....	53
J.12	Production lines and equipment for production of school and office stationery.....	54
J.12.1	Exercise book production lines .....	54
J.13	Shredders for paper and cardboard .....	54
Annex ZA	(informative) Clauses of this European Standard addressing essential requirements or other provisions of EU Directives.....	55
Bibliography	.....	56

## Foreword

This document EN 13023:2003 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 December 2003, and conflicting national standards shall be withdrawn at the latest by December 2003.

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.

Annexes A to J are normative.

This document contains a bibliography.

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

## 1 Scope

This standard specifies all the information necessary to carry out efficiently and under standardized conditions the determination, declaration and verification of airborne noise emission from printing and paper converting machines covered by the EN 1010 series and from paper making and finishing machines covered by the EN 1034 series. It specifies noise measurement methods and installation and operating conditions to be used for the test.

This standard applies to those machines listed in the normative annexes A to J. The principles of this noise test code should be applied as far as possible also for the determination of noise emission of machines and machine parts not listed in the normative annexes A to J. In such cases, all information relating to assembly, installation and operating conditions as well as the arrangement of work stations should be recorded and reported in the test report.

Noise emission characteristics include emission sound pressure levels at work stations and the sound power level. Declared noise emission values permit comparison of printing and paper machines on the market.

The use of this noise test code ensures the reproducibility of the determination of the characteristic noise emissions within specific limits. These limits are determined by the accuracy grade of the noise measuring method used. Noise measurements specified by this standard are carried out by the engineering method (accuracy grade 2) and the survey method (accuracy grade 3).

## 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 292-2:1991, *Safety of machinery — Basic concepts, general principles for design — Part 2: Technical principles and specifications*

EN ISO 216, *Writing paper and certain classes of printed matter - Trimmed sizes - A and B series.* (ISO 216:1975).

EN ISO 3740:1980, *Acoustics — Determination of sound power levels of noise sources. Guidelines for the use of basic standards for the preparation of noise test codes* (ISO 3740:2000).

EN ISO 3744:1994, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Engineering method in an essentially free field over a reflecting plane* (ISO 3744:1994).

EN ISO 3746:1995, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Survey method using an enveloping measurement surface over a reflecting plane for accuracy grade 3* (ISO 3746:1995).

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

EN ISO 9614-1:1995, *Acoustics — Determination of sound-power levels of noise sources using sound intensity — Part 1: Measurement at discrete points* (ISO 9614-1:1993).

EN ISO 9614-2:1996, *Acoustics — Determination of sound-power levels of noise sources using sound intensity — Part 2: Measurement by scanning* (ISO 9614-2:1996).

EN ISO 11200:1995, *Acoustics — Noise emitted by machinery and equipment — Guidelines for the use of basic standards for the determination of emission sound pressure levels at a work station and at other specified positions* (ISO 11200:1995).

EN ISO 11202:1995, *Acoustics — Noise emitted by machinery and equipment — Measurement of emission sound pressure levels at a work station and at other specified positions — Survey method for measurements accuracy grade 3 under operating conditions* (ISO 11202:1995).

EN ISO 11203:1995, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions from the sound-power level* (ISO 11203:1995).

.EN ISO 11204:1995, *Acoustics — Noise emitted by machinery and equipment — Measurement of emission sound pressure levels at a work station and at other specified positions — Method requiring environmental corrections* (ISO 11204:1995).

### 3 Terms and definitions

For the purposes of this European Standard, the following term and definition applies in addition to the definitions given in the basic standards for the determination of emission sound pressure levels at work stations and other specified positions (EN ISO 11200:1995, EN ISO 11202:1995, EN ISO 11203:1995 and EN ISO 11204:1995) and in the basic standards for the determination of sound power levels (EN ISO 3740:2000, EN ISO 3744:1995, EN ISO 3746:1995 and EN ISO 9614-1:1995 and ISO 9614-2:1996).