

**Masinate ohutus. Ergonoomia põhimõtted
projekteerimisel. Osa 1: Terminoloogia ja üldised
põhimõtted KONSOLIDEERITUD TEKST**

Safety of machinery - Ergonomic design principles -
Part 1: Terminology and general principles
CONSOLIDATED TEXT

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 614-1:2006+A1:2009 sisaldab Euroopa standardi EN 614-1:2006+A1:2009 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 27.03.2009 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 11.02.2009.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 614-1:2006+A1:2009 consists of the English text of the European standard EN 614-1:2006+A1:2009.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 27.03.2009 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 11.02.2009.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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ICS 13.110, 13.180

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English Version

Safety of machinery - Ergonomic design principles - Part 1: Terminology and general principles

Sécurité des machines - Principes ergonomiques de
conception - Partie 1: Terminologie et principes généraux

Sicherheit von Maschinen - Ergonomische
Gestaltungsgrundsätze - Teil 1: Begriffe und allgemeine
Leitsätze

This European Standard was approved by CEN on 13 December 2008.

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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 Management Centre has the same status as the official versions.

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Contents

Page

Foreword.....	3
Introduction	4
1 Scope	5
2 Normative references	6
3 Terms and definitions	6
4 General principles.....	9
4.1 General.....	9
4.2 Accessible design for people with special requirements	9
4.3 Taking account of people's body dimensions, postures, body movements, and physical strength.....	10
4.4 Taking account of people's mental abilities	13
4.5 Taking account of the influence of the physical work environment on people	14
5 Incorporating ergonomic principles into the design process of machinery	15
5.1 General.....	15
5.2 Ergonomics tasks to be performed during the design process of machinery	16
Annex A (informative) Guidelines for the use of the 3-zone rating system.....	20
A.1 Introduction	20
A.2 Definition and use of the 3-zone rating system.....	20
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 98/37/EC, amended by 98/79/EC.....	22
Annex ZB (informative)  Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC 	23
Bibliography	24

Foreword

This document (EN 614-1:2006+A1:2009) has been prepared by Technical Committee CEN/TC 122 "Ergonomics", 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 July 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.

This document includes Amendment 1, approved by CEN on 2008-12-13.

This European Standard supersedes \square_{A1} EN 614-1:2006 \square_{A1} .

The start and finish of text introduced or altered by amendment is indicated in the text by tags \square_{A1} \square_{A1} .

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EC Directive(s).

\square_{A1} For relationship with EC Directive(s), see informative Annexes ZA and ZB, which are integral parts of this European Standard.

EN 614 consists of the following Parts, under the general title Safety of machinery – Ergonomic design principles:

- Part 1: Terminology and general principles
- Part 2: Interactions between the design of machinery and work tasks. \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, 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

Ergonomically designed work systems enhance safety, improve human working and living conditions and counteract adverse effects on human health. Also they usually improve the operator-machine system performance and reliability. In this European Standard the term "ergonomics" refers to a multidisciplinary field of science and its application. Applying ergonomics to the design of work systems, especially where the design of machinery is concerned, ensures that human capabilities, skills, limitations and needs are taken into account.

The work system includes operators, job design, work equipment (e.g. machinery), work space, work environment, work process and the interactions between them. It can vary in complexity from a workshop with a single operator using hand held equipment to a process plant and its operators. Good design takes into account how the operator is expected to interact with the work equipment and how the work equipment fits into the system as a whole. This is particularly important the more the work equipment is interdependent on other components of the system. In its whole complexity, the working system is described in generic standards (e.g. EN ISO 6385).

Compliance with harmonised standards prepared by CEN/CENELEC enables manufacturers and suppliers to meet requirements of European legislation. EN ISO 12100-1 and EN ISO 12100-2 contain the concepts and general principles to guide designers in achieving safety for machinery for occupational and private purposes. Ergonomic principles can be incorporated into the design process by following this standard. In this way both the technical design and ergonomic principles are considered at the same time. The aim to enhance the health, safety and well-being of workers is reached by systematically minimising the risks according to **A1** EN ISO 12100 **A1**. EN 13861 provides information concerning applicable ergonomic B-type standards related to specific hazards.

This standard is one of the European Standards covering specific topics identified in EN ISO 12100-1 and EN ISO 12100-2 as important to the safety of machinery.

1 Scope

This European Standard establishes the ergonomic principles to be followed during the process of design of machinery.

This European Standard applies to the interactions between operators and machinery when installing, operating, adjusting, maintaining, cleaning, dismantling, repairing or transporting equipment, and outlines the principles to be followed in taking the health, safety and well-being of the operator into account. This European Standard provides a framework within which the range of more specific ergonomics standards and other related standards relevant to machinery design should be applied.

The ergonomic principles given in this European Standard apply to all ranges of human abilities and characteristics to ensure safety, health and well-being and overall system performance. Information will need to be interpreted to suit the intended use.

NOTE Although the principles in this European Standard are orientated towards machinery for occupational use, they are also applicable to equipment and machinery for private use.

2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 894-3, *Safety of machinery — Ergonomics requirements for the design of displays and control actuators — Part 3: Control actuators*

Ⓐ₁ deleted text Ⓐ₁

EN ISO 12100-1, *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)*

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