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**Safety of machinery — Anthropometric  
requirements for the design of  
workstations at machinery**

*Sécurité des machines — Prescriptions anthropométriques relatives à  
la conception des postes de travail sur les machines*



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## Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 14738 was prepared by the European Committee for Standardization (CEN) in collaboration with ISO Technical Committee TC 159, *Ergonomics*, Subcommittee SC 3, *Anthropometry and biomechanics*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Throughout the text of this standard, read "this European Standard..." to mean "...this International Standard...".

Annex A forms a normative part of this International Standard. Annex B is for information only.

For the purposes of this International Standard, the CEN annex regarding fulfilment of European Council Directives has been removed.

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## Foreword

This document (EN ISO 14738:2002) has been prepared by Technical Committee CEN/TC 122 "Ergonomics", the secretariat of which is held by DIN, in collaboration with Technical Committee ISO/TC 159 "Ergonomics".

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of an identical text or by endorsement, at the latest by February 2003, and conflicting national standards shall be withdrawn at the latest by February 2003.

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 EU Directive(s).

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, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

## Introduction

This International Standard is one of several ergonomics standards for the safety of machinery. EN 614-1 describes the principles designers should adopt in order to take account of ergonomic factors.

This International Standard describes how these principles should be applied by using anthropometric requirements for the design of workstations at machinery.

In addition it is recommended that the postures and movements that are imposed by the machinery design are evaluated as described in ISO 11226 and prEN 1005-4.

This International Standard has been prepared to be a harmonized standard in the sense of the Machinery Directive and associated EFTA regulations.

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## 1 Scope

This International Standard establishes principles for deriving dimensions from anthropometric measurements and applying them to the design of workstations at non-mobile machinery. It is based on current ergonomic knowledge and anthropometric measurements.

This International Standard specifies the body's space requirements for equipment during normal operation in sitting and standing positions. This International Standard does not specifically include space demands for maintenance, repairing and cleaning work.

This International Standard does not give recommendations specifically for visual display terminal workstations at machinery. For this purpose ISO 9241-5 can be used in conjunction with this International Standard.

Situations where people are to be prevented from reaching a hazard are dealt with in ISO 13852.

## 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).

ISO 13852

Safety of machinery - Safety distances to prevent danger zones being reached by the upper limbs

ISO 15534-3

Ergonomic design for the safety of machinery - Part 3: Anthropometric data

ISO 7250 : 1996

Basic human body measurements for technological design

## 3 Task requirements

Design of workstations at machinery shall be based on an analysis of task requirements (see EN 614-1 and EN 614-2) including at least the following elements:

- time aspects e.g. duration of work at the machinery (see ISO 11226 and prEN 1005-4);
- size of working area;
- size of objects to be handled;
- force demands (see prEN 1005-2 and prEN 1005-3);
- action demands (e.g. for feeding and/or removing items from the machinery);