

## **Ergonomic design of control centres - Part 4: Layout and dimensions of workstations**

Ergonomic design of control centres - Part 4: Layout and dimensions of workstations

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 11064-4:2004 sisaldab Euroopa standardi EN ISO 11064-4:2004 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 26.10.2004 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 11064-4:2004 consists of the English text of the European standard EN ISO 11064-4:2004.</p> <p>This document is endorsed on 26.10.2004 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 part of ISO 11064 specifies ergonomic principles, recommendations and requirements for the design of workstations found in control centres. It covers workstation design with particular emphasis on layout and dimensions. This standard covers primarily seated, visual-display-based workstations although sit/stand workstations are also addressed. These workstations are to be found in applications such as transportation control, process control and security installations.</p>	<p><b>Scope:</b></p> <p>This part of ISO 11064 specifies ergonomic principles, recommendations and requirements for the design of workstations found in control centres. It covers workstation design with particular emphasis on layout and dimensions. This standard covers primarily seated, visual-display-based workstations although sit/stand workstations are also addressed. These workstations are to be found in applications such as transportation control, process control and security installations.</p>

ICS 13.180, 25.040.10

Võtmesõnad:

ICS 13.180; 25.040.10

**English version**

**Ergonomic design of control centres**

**Part 4: Layout and dimensions of workstations  
(ISO 11064-4 : 2004)**

Conception ergonomique des centres  
de commande – Partie 4: Agence-  
ment et dimensionnement du poste  
de travail (ISO 11064-4 : 2004)

Ergonomische Gestaltung von Leit-  
zentralen – Teil 4: Auslegung und  
Maße von Arbeitsplätzen  
(ISO 11064-4 : 2004)

This European Standard was approved by CEN on 2004-06-24.

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.

The European Standards exist 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, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, and the United Kingdom.

**CEN**

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

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

## Foreword

International Standard

ISO 11064-4 : 2004 Ergonomic design of control centres – Part 4: Layout and dimensions of workstations, which was prepared by ISO/TC 159 'Ergonomics' of the International Organization for Standardization, has been adopted by Technical Committee CEN/TC 122 'Ergonomics', the Secretariat of which is held by IBN, as a European Standard.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by January 2005 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

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

## Endorsement notice

The text of the International Standard ISO 11064-4 : 2004 was approved by CEN as a European Standard without any modification.

## Contents

Page

Foreword .....	2
Introduction .....	4
1 Scope .....	5
2 Normative references .....	5
3 Terms and definitions .....	5
4 Initial workstation layout considerations .....	7
5 Factors determining control workstation design .....	9
5.1 User population .....	9
5.1.1 General user considerations .....	9
5.1.2 User requirements .....	9
5.2 Visual tasks .....	12
5.2.1 General visual considerations .....	12
5.2.2 General visual recommendations .....	12
5.3 Auditory tasks .....	13
5.3.1 General auditory considerations .....	13
5.3.2 General auditory requirements and recommendations .....	13
5.4 Working postures .....	13
5.4.1 Posture considerations .....	13
5.4.2 Posture requirements and recommendations .....	14
6 Control workstation layout .....	16
6.1 General layout considerations .....	16
6.1.1 Displays .....	16
6.1.2 Controls .....	17
6.2 Layout requirements .....	17
6.2.1 Displays .....	17
6.2.2 Controls .....	19
6.2.3 Other workstation tasks .....	21
6.2.4 General .....	21
7 Control workstation dimensions .....	21
7.1 Dimension considerations .....	21
7.2 Seated control workstations .....	21
7.3 Standing control workstations .....	22
7.4 Sit-stand control workstations .....	22
Annex A (informative) Arranging displays and control workstations .....	23
Bibliography .....	34

## Introduction

This part of ISO 11064 establishes ergonomic requirements, recommendations and guidelines for the design of workplaces in control centres.

All types of control centres are covered, including those for the process industry, transport and dispatching systems or emergency services. Although this part of ISO 11064 is primarily intended for non-mobile control centres, many of the principles are relevant to mobile centres such as those found on ships, locomotives and aircraft.

User requirements are a central theme of this part of ISO 11064 and the processes described are designed to take into account the needs of users at all stages. The overall strategy for dealing with the user requirements is presented in ISO 11064-1. ISO 11064-2 provides guidance on the design and planning of the control room in relation to its supporting areas. Requirements for the layout of the control room are covered by ISO 11064-3. Displays and controls, human computer interaction and the physical working environment are presented in ISO 11064-5 and ISO 11064-6. Evaluation principles are dealt with in ISO 11064-7.

The ultimate beneficiaries of this part of ISO 11064 will be the operator within the control room and other users. It is the needs of these users that provide the ergonomic requirements that are addressed by the International Standards developers. Although it is unlikely that the end user will read this International Standard, or even know of its existence, its application should provide the user with interfaces that are more usable, and a working environment which is more consistent with operational demands and result in a solution which will improve system performance and will minimize error and enhance productivity.

## 1 Scope

This part of ISO 11064 specifies ergonomic principles, recommendations and requirements for the design of workstations found in control centres. It covers workstation design with particular emphasis on layout and dimensions. This standard covers primarily seated, visual-display-based workstations although sit/stand workstations are also addressed. These workstations are to be found in applications such as transportation control, process control and security installations.

## 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.

ISO 9241-3:1992, *Ergonomic requirements for office work with visual display terminals (VDTs) — Part 3: Visual display requirements*

ISO 9241-5:1998, *Ergonomic requirements for office work with visual display terminals (VDTs) — Part 5: Workstation layout and postural requirements*

ISO 9355-2:1999, *Ergonomic requirements for the design of displays and control actuators — Part 2: Displays*

ISO 11064-3:1999, *Ergonomic design of control centres — Part 3: Control room layout*

ISO 11428:1996, *Ergonomics — Visual danger signals — General requirements, design and testing*

## 3 Terms and definitions

For the purposes of this part of ISO 11064, the following terms and definitions apply.

### 3.1

#### **control workstation**

single or multiple working position, including all equipment such as computers and communication terminals and furniture at which control and monitoring functions are conducted

[ISO 11064-3:1999, definition 3.7]

### 3.2

#### **cone of fixations**

angular extend to which the line of sight can be swept by rotating the eyeball in the skull while the head rests