



SLOVENSKI STANDARD
SIST EN ISO 11064-4:2004
01-november-2004

9f[cbca g_c'bU flcj Ub^_fa]b] `Wbfcj `!("XY'.l fYX]Hj `]b`a YfYXYcj b] `a Ygh
 fGC`%/\$* (!. &\$\$(£

Ergonomic design of control centres - Part 4: Layout and dimensions of workstations
 (ISO 11064-4:2004)

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

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

<https://standards.iteh.ai/catalog/standards/sist/051d7ec4-6bbe-40d6-8c05-3b401c5dbfa7/sist-en-iso-11064-4-2004>

Ta slovenski standard je istoveten z: EN ISO 11064-4:2004

ICS:

13.180	Ergonomija	Ergonomics
25.040.10	X^ [] ^i a a \ á d[lã	Machining centres

SIST EN ISO 11064-4:2004 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 11064-4:2004](https://standards.iteh.ai/catalog/standards/sist/051d7ec4-6bbe-40d6-8c05-3b401c5dbfaf/sist-en-iso-11064-4-2004)

<https://standards.iteh.ai/catalog/standards/sist/051d7ec4-6bbe-40d6-8c05-3b401c5dbfaf/sist-en-iso-11064-4-2004>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 11064-4

July 2004

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: Agencement et dimensionnement du poste de
travail (ISO 11064-4:2004)

This European Standard was approved by CEN on 24 June 2004.

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.

[SIST EN ISO 11064-4:2004](https://standards.iteh.ai/catalog/standards/sist/051d7ec4-6bbe-40d6-8c05-3b401c5dbfa7/sist-en-iso-11064-4-2004)

<https://standards.iteh.ai/catalog/standards/sist/051d7ec4-6bbe-40d6-8c05-3b401c5dbfa7/sist-en-iso-11064-4-2004>



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

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

EN ISO 11064-4:2004 (E)

Foreword

This document (EN ISO 11064-4:2004) has been prepared by Technical Committee ISO/TC 159 "Ergonomics" in collaboration with 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 January 2005, and conflicting national standards shall be withdrawn at the latest by January 2005.

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 United Kingdom.

Endorsement notice

The text of ISO 11064-4:2004 has been approved by CEN as EN ISO 11064-4:2004 without any modifications.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 11064-4:2004](https://standards.iteh.ai/catalog/standards/sist/051d7ec4-6bbe-40d6-8c05-3b401c5dbfaf/sist-en-iso-11064-4-2004)

<https://standards.iteh.ai/catalog/standards/sist/051d7ec4-6bbe-40d6-8c05-3b401c5dbfaf/sist-en-iso-11064-4-2004>

INTERNATIONAL
STANDARD

ISO
11064-4

First edition
2004-07-01

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

Conception ergonomique des centres de commande —

Partie 4: Agencement et dimensionnement du poste de travail

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 11064-4:2004](https://standards.iteh.ai/catalog/standards/sist/051d7ec4-6bbe-40d6-8c05-3b401c5dbfaf/sist-en-iso-11064-4-2004)

<https://standards.iteh.ai/catalog/standards/sist/051d7ec4-6bbe-40d6-8c05-3b401c5dbfaf/sist-en-iso-11064-4-2004>



Reference number
ISO 11064-4:2004(E)

© ISO 2004

ISO 11064-4:2004(E)**PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN ISO 11064-4:2004](https://standards.iteh.ai/catalog/standards/sist/051d7ec4-6bbe-40d6-8c05-3b401c5dbfaf/sist-en-iso-11064-4-2004)

<https://standards.iteh.ai/catalog/standards/sist/051d7ec4-6bbe-40d6-8c05-3b401c5dbfaf/sist-en-iso-11064-4-2004>

© ISO 2004

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Initial workstation layout considerations	3
5 Factors determining control workstation design	5
5.1 User population	5
5.1.1 General user considerations	5
5.1.2 User requirements	5
5.2 Visual tasks	8
5.2.1 General visual considerations	8
5.2.2 General visual recommendations	8
5.3 Auditory tasks	9
5.3.1 General auditory considerations	9
5.3.2 General auditory requirements and recommendations	9
5.4 Working postures	9
5.4.1 Posture considerations	9
5.4.2 Posture requirements and recommendations	10
6 Control workstation layout	12
6.1 General layout considerations	12
6.1.1 Displays	12
6.1.2 Controls	13
6.2 Layout requirements	13
6.2.1 Displays	13
6.2.2 Controls	15
6.2.3 Other workstation tasks	17
6.2.4 General	17
7 Control workstation dimensions	17
7.1 Dimension considerations	17
7.2 Seated control workstations	17
7.3 Standing control workstations	18
7.4 Sit-stand control workstations	18
Annex A (informative) Arranging displays and control workstations	19
Bibliography	30

ISO 11064-4:2004(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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 the member bodies casting a vote.

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

ISO 11064-4 was prepared by Technical Committee ISO/TC 159, *Ergonomics*, Subcommittee SC 4, *Ergonomics of human-system interaction*.

ISO 11064 consists of the following parts, under the general title *Ergonomic design of control centres*:

- *Part 1: Principles for the design of control centres*
- *Part 2: Principles for the arrangement of control suites*
- *Part 3: Control room layout*
- *Part 4: Layout and dimensions of workstations*
- *Part 5: Human-system interfaces*
- *Part 6: Environmental requirements for control centres*
- *Part 7: Principles for the evaluation of control centres*

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 11064-4:2004
<https://standards.iteh.ai/catalog/standards/sist/051d7ec4-6bbe-40d6-8c05-3b401c5dbfaf/sist-en-iso-11064-4-2004>

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.

[SIST EN ISO 11064-4:2004](https://standards.iteh.ai/catalog/standards/sist/051d7ec4-6bbe-40d6-8c05-3b401c5dbfaf/sist-en-iso-11064-4-2004)

<https://standards.iteh.ai/catalog/standards/sist/051d7ec4-6bbe-40d6-8c05-3b401c5dbfaf/sist-en-iso-11064-4-2004>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 11064-4:2004](#)

<https://standards.iteh.ai/catalog/standards/sist/051d7ec4-6bbe-40d6-8c05-3b401c5dbfaf/sist-en-iso-11064-4-2004>

Ergonomic design of control centres —

Part 4: Layout and dimensions of workstations

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

ISO 11064-4:2004(E)**3.3****legibility**

visual properties of a character or symbol that determine the ease with which it can be recognized

[ISO 9241-3:1992, definition 2.17]

3.4**line-of-sight**

line connecting the point of fixation and the centre of the pupil

[ISO 9241-3:1992, definition 2.18]

3.5**nearpoint**

nearest viewing distance to which the eye accommodates

3.6**normal line-of-sight**

inclination of the line-of-sight with respect to the horizontal plane, when the muscles assigned for the orientation of the eyes are relaxed

3.7**percentile**

percentage of population of which specific characteristics fall below or are equal to a given value in a cumulative distribution

iTeh STANDARD PREVIEW
(standards.iteh.ai)

3.8**reach envelope**

three-dimensional space in which an operator can comfortably reach and manipulate controls by either hand while assuming a posture normally anticipated for the task

<https://standards.iteh.ai/catalog/standards/sist/051d7ec4-6bbe-40d6-8c05-3b401c5dbfaf/sist-en-iso-11064-4-2004>

3.9**task zone**

space determined by the equipment and activities required for the conduct of a particular task

3.10**visual angle**

angle subtended at the eye by the viewed object, e.g. a character or symbol

3.11**visual field, field of vision**

physical space visible to an eye in a given position

[ISO 8995:1989, definition 3.1.10]

NOTE 1 In this standard the use of both eyes is assumed for visual field considerations.

NOTE 2 The position of the visual field depends on the direction of the line-of-sight.

NOTE 3 Separate, distinct stimuli in the visual field will be detected even if they appear simultaneously.

NOTE 4 While the extent of the visual field is approximately $\pm 35^\circ$ around the line-of-sight, only $1^\circ \dots 2^\circ$ of these are for sharp vision.

3.12**work environment**

physical, chemical, biological, organizational, social and cultural factors surrounding a person in his or her work space

[EN 614-1:1995, definition 3.5]

3.13**work space**

volume allocated to one or more persons in the work system to complete the work task

[EN 614-1:1995, definition 3.4]

3.14**workstation**

combination of work equipment for a particular person in a work space

[ISO 11064-2:2000, definition 3.5]

NOTE It is possible that several persons share a particular control workstation, or that several persons alternate several workstations within any period of time (i.e., on an hourly, daily, weekly basis).

3.15**work task****task**

activity or activities required to achieve an intended outcome of the work system

[EN 614-1:1995, definition 3.2]

4 Initial workstation layout considerations

The starting point for control workstation design (shape and dimensions) is a list of work tasks and related work characteristics. The human operator may need certain facilities, such as displays, input devices, and communication equipment. Work space may also be required for special control-room-related tasks such as paper work. For each task, a compilation of the requirements of the associated devices is needed. By taking account of job designs, task zones are combined together into control workstation arrangements. The grouping of control workstations into control room layouts is discussed in ISO 11064-2 and ISO 11064-3.

Requirements identified for each task zone are inputs for detailed engineering of workstations.

The following iterative procedure, outlined in Figure 1, can be used as a systematic approach to designing workstations. The order of stages may vary according to the design situation.

A systematic approach to designing workstations is presented in Figure 1. The sequence of stages involved in this process may vary as a result of iterations and this may have an impact on the appropriate tasks, which need to be undertaken at each stage.