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## **Ergonomics — Accessible design — Controls of consumer products**

*Ergonomie — Conception accessible — Commandes d'entrée des  
produits de consommation courante*



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## 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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

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

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

This document deals with the accessibility requirements and recommendations for controls of consumer products based on ergonomic principles and practices.

This document serves the following user groups:

- a) the consumer product designers, who apply specifications of this document during the development process when designing particular consumer products;
- b) the buyers, who reference this document during the product procurement process, and whose end users gain from the potential benefits provided by this document; and
- c) the customer care service staffs who give consultancy to the end users.

The ultimate beneficiaries of this document are the end users, i.e. the consumers with age or disabilities. Its application by designers, buyers, and evaluators should provide controls that are more accessible, usable, and satisfactory. Furthermore, this document widens the range of consumers as far as possible and is not limited to the ergonomic capabilities of any particular working populations. It constitutes a starting point from which to offer requirements and recommendations for accessible design of controls of most consumer products.

This document is based on current understandings of the characteristics and capabilities of individuals who have particular physical, sensory, or cognitive impairments. The intended users are consumers of everyday products with a wide range of human characteristics and capabilities engaging in the activities of daily living. People with age or disabilities do not need to be considered separately when using this document for design processes.

This document consists of general recommendations based on extended ergonomic principles as explained above concerning the operation of various controls. The recommendations were developed primarily by reviewing the existing relevant literature and empirical evidence, then generalizing and formulating the derived or gathered knowledge into recommendations for use by designers and consumers.

This document adopts the concepts of accessibility given in ISO/IEC Guide 71. Designers can obtain general concept of accessibility needs and design requirements in ISO/IEC Guide 71. Together with the ISO 9241-400 series, this document provides principles and requirements when designing controls regardless of their types and forms, for a wider spectrum of users, including persons with disabilities and older persons. This document also presents accessibility specifications for particular types of controls covered by other documents, for example IEC 63008.



# Ergonomics — Accessible design — Controls of consumer products

## 1 Scope

This document defines design principles of accessibility for controls of consumer products, so that users from a population with the widest range of user needs, characteristics and capabilities are able to use controls to operate and control consumer products in the same manner and ease as users without disabilities.

This document is applicable to all kinds and types of consumer products. This document is applicable to the controls for common main operations of consumer products such as initiation, termination, and cancellation of operation, as well as for specified functions necessary for more detailed operations and fine adjustment.

This document does not deal with controls for some specialized devices intended only for specified user populations and tasks, e.g. assistive and medical devices. Each design consideration in this document is based on ergonomic principles that are necessary for making the controls of consumer products accessible to a wider range of users.

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

### 3.1

#### **accessible design**

design focused on diverse users to maximize the number of potential users who can readily use a system in various contexts

[SOURCE: ISO/IEC Guide 71:2014, 2.19]

### 3.2

#### **main operation**

major fundamental function commonly needed to control a consumer product without detailed configuration

Note 1 to entry: Controls are differentiated in type for main operation and for function selection and value adjustment. The main functions of consumer products include start, stop, pause, and cancel operations as well as power control.