
**Ergonomic design for the safety of
machinery —**

Part 1:

**Principles for determining the dimensions
required for openings for whole-body
access into machinery**

Conception ergonomique pour la sécurité des machines —

*Partie 1: Principes de détermination des dimensions requises pour les
ouvertures destinées au passage de l'ensemble du corps dans les
machines*



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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.

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 the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 15534 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 15534-1 was prepared by Technical Committee ISO/TC 159, *Ergonomics*, Subcommittee SC 3, *Anthropometry and biomechanics*.

ISO 15534 consists of the following parts, under the general title *Ergonomic design for the safety of machinery*:

- *Part 1: Principles for determining the dimensions required for openings for whole-body access into machinery*
- *Part 2: Principles for determining the dimensions required for access openings*
- *Part 3: Anthropometric data*

Annex A forms a normative part of this part of ISO 15534. Annex B is for information only.

Introduction

This part of ISO 15534 is one of several ergonomics standards for the safety of machinery.

EN 614-1 ([2] in the Bibliography) describes the principles designers should adopt in order to take account of ergonomic factors. This part of ISO 15534 describes how these principles should be applied to the design of openings which will allow whole-body access.

This part of ISO 15534 is based on EN 547-1:1996 that was prepared as a harmonized standard conforming with the Machinery Directive and associated European Free Trade Association (EFTA) regulations.

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Ergonomic design for the safety of machinery —

Part 1:

Principles for determining the dimensions required for openings for whole-body access into machinery

1 Scope

This part of ISO 15534 specifies the dimensions of openings for whole-body access into machinery as defined in ISO/TR 12100-1. It provides the dimensions to which the values given in ISO 15534-3 are applicable. Values for additional space requirements are given in annex A. This part of ISO 15534 has been prepared primarily for non-mobile machinery; there may be additional specific requirements for mobile machinery.

Dimensions for passages are based on the values for either the 95th or the 99th percentiles of the expected user population. Values for the 99th percentile apply to emergency egress routes.

The anthropometric data given in ISO 15534-3 originate from static measurements of nude persons and do not take into account body movements, clothing, equipment, machinery-operating conditions or environmental conditions.

This part of ISO 15534 shows how to combine the anthropometric data with suitable allowances to take these factors into account.

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

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 15534. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 15534 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO/TR 12100-1:1992, *Safety of machinery — Basic concepts, general principles for design — Part 1: Basic terminology, methodology*. (EN 292-1:1991)

ISO 13852:1996, *Safety of machinery — Safety distances to prevent danger zones being reached by the upper limbs*. (EN 294:1992)

ISO 15534-3:2000, *Ergonomic design for the safety of machinery — Part 3: Anthropometric data*.