
**Safety of machinery — Permanent
means of access to machinery —**

**Part 2:
Working platforms and walkways**

*Sécurité des machines — Moyens d'accès permanents aux
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.

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).

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).

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

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 199, *Safety of machinery*.

This second edition cancels and replaces the first edition (ISO 14122-2:2001), which has been technically revised. It also incorporates the Amendment ISO 14122-2:2001/Amd 1:2010.

ISO 14122 consists of the following parts, under the general title *Safety of machinery — Permanent means of access to machinery*:

- *Part 1: Choice of fixed means and general requirements of access*
- *Part 2: Working platforms and walkways*
- *Part 3: Stairs, stepladders and guard-rails*
- *Part 4: Fixed ladders*

An additional part, dealing with mobile machinery, is under preparation.

Introduction

This International Standard is a type-B standard as stated in ISO 12100.

This International Standard is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

- machine manufacturers (small, medium, and large enterprises);
- health and safety bodies (regulators, accident prevention organizations, market surveillance, etc.).

Others can be affected by the level of machinery safety achieved with the means of this International Standard by the above mentioned stakeholder groups:

- machine users/employers (small, medium, and large enterprises);
- machine users/employees (e.g. trade unions, organizations for peoples with special needs);
- service providers, e.g. for maintenance (small, medium, and large enterprises);
- consumers (in case of machinery intended for use by consumers).

The above mentioned stakeholder groups have been given the possibility to participate at the drafting process of this International Standard.

In addition, this International Standard is intended for standardization bodies elaborating type-C standards.

The requirements of this International Standard can be supplemented or modified by a type-C standard.

For machines which are covered by the scope of a type-C standard and which have been designed and built according to the requirements of that standard, the requirements of that type-C standard take precedence.

The purpose of this International Standard is to define the general requirements for safe access to machines. ISO 14122-1 gives guidance about the correct choice of access means when the necessary access to the machine is not possible directly from the ground level or from a floor or platform.

[Annex A](#) is informative.

The dimensions specified are consistent with established ergonomic data given in ISO 15534-3.

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Safety of machinery — Permanent means of access to machinery —

Part 2: Working platforms and walkways

1 Scope

This part of ISO 14122 gives requirements for non-powered working platforms and walkways which are a part of a stationary machine, and to the non-powered adjustable parts (e.g. foldable, sliding) and movable parts of those fixed means of access.

NOTE 1 “Fixed” means of access are those mounted in such a manner (for example, by screws, nuts, welding) that they can only be removed by the use of tools.

This part of ISO 14122 specifies minimum requirements that also apply when the same means of access is required as the part of the building or civil construction (e.g. working platforms, walkways) where the machine is installed, on condition that the main function of that part of the construction is to provide a means of access to the machine.

NOTE 2 Where no local regulation or standards exist, this part of ISO 14122 can be used for means of access which are outside the scope of the standard.

It is intended that this part of ISO 14122 be used with ISO 14122-1 to give the requirements for walking platforms and walkways.

The ISO 14122 series as a whole is applicable to both stationary and mobile machinery where fixed means of access are necessary. It is not applicable to powered means of access such as lifts, escalators, or other devices specially designed to lift persons between two levels.

This part of ISO 14122 is not applicable to machinery manufactured before the date of its publication.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 12100, *Safety of machinery — General principles for design — Risk assessment and risk reduction*

ISO 13857, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs*

ISO 14120, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards*

ISO 14122-1:2016, *Safety of machinery — Permanent means of access to machinery — Part 1: Choice of fixed means and general requirements of access*

ISO 14122-3:2016, *Safety of machinery — Permanent means of access to machinery — Part 3: Stairs, stepladders and guard-rails*

ISO 15534-1:2000, *Ergonomic design for the safety of machinery — Part 1: Principles for determining the dimensions required for openings for whole-body access into machinery*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12100, ISO 14122-1, and the following apply.

3.1 flooring
assembly of elements making up the floor of a *walkway* (3.2) or a *working platform* (3.3) and being in direct contact with footwear

3.2 walkway
level or inclined surface used for moving from one point to another

3.2.1 maneuverable walkway
level or inclined surface used for moving, installed at the machine permanently, and intended to be shortened, elongated, or altered in its position

Note 1 to entry: This includes foldable, slidable, adjustable and/or hinged to, or slid from an adjacent platform or walkway.

3.3 working platform
horizontal level surface used for the operation, maintenance, inspection, repair, sampling, and other phases of work in connection with the machinery

3.3.1 maneuverable platform
level surface used for operation, installed at the machine permanently, and intended to be shortened, elongated, or altered in its position

Note 1 to entry: This includes foldable, slidable, adjustable and/or hinged to, or slid from an adjacent platform or *walkway* (3.2).

3.4 slip resistant surface
flooring surface designed for improving the grip of footwear

3.5 baseboard
filler plate between *working platform* (3.3) and adjacent construction element

3.6 toe-plate
rigid vertical plate on a landing platform or *flooring* (3.1) to prevent the fall of objects from a floor level

Note 1 to entry: See [Figure 2](#) and ISO 14122-3:2016, Figure 2.

3.7 access gauge
space to be cleared of any structures, obstacles, and obstruction in order to enable access

3.8 head-height
minimum vertical distance, cleared of all obstacles (such as beams, ducts, etc.) above the pitch line

Note 1 to entry: h in [Figure 1](#).

4 General requirements

4.1 General

4.1.1 Construction and materials

Working platforms and walkways shall be designed and constructed and the materials selected so that they withstand the foreseeable conditions of use. In particular, at least the following details shall be taken into account:

- a) Walkways and working platforms shall be designed and constructed to prevent the hazards due to falling objects. For guard-rails and toe-plates, see ISO 14122-3:2016, Clause 7, and for openings in the flooring, see 4.2.4.5.
- b) The removal of any part of the machine shall, as far as practicable, be possible without removing guard-rails, pieces of flooring, or other permanent protective barriers.

4.1.2 Safe access of operators

Walkways and working platforms shall be designed and constructed so that they are safe to use. In particular, the following aspects shall be taken into account:

- a) Walkways and working platforms shall be designed and built in such a way that the walking surfaces have durable slip resistant properties.
- b) The parts of machinery which operators have to walk or stand on shall be designed and fitted to prevent persons falling from them (see ISO 14122-3).
- c) Working platforms and access to working platforms shall be designed in such a way that operators can quickly leave their workplace in the event of a hazard or can be quickly helped and easily evacuated when necessary.
- d) Handrails and other supports shall be designed, built, and laid out in such a way that they are used instinctively.

4.2 Specific requirements

4.2.1 Location

Where possible, walkways and working platforms shall be located or protected to prevent exposure to harmful materials or substances. The walkways and walking platforms shall also be located away from the accumulation of material, such as earth, which is likely to cause slipping.

Where there are, for example, moving objects, non-protected surfaces with extreme temperatures, unprotected live electrical equipment, measures such as guards in accordance with ISO 14120 or safety distances in accordance with ISO 13857 shall be applied either to the machinery or fixed access.

Where possible, working platforms shall be designed and located to enable persons to work in an ergonomic position between 500 mm and 1 700 mm above the surface of the working platform without increasing the risk of falling.

4.2.2 Dimensions

The clear length and width of walkways and working platforms intended for operation and maintenance shall be determined by the following:

- a) the demands of the task, e.g. positions, nature and speed of movement, application of force, etc.;
- b) whether or not tools, spare parts, etc. are being carried;

- c) frequency and duration of task and use;
- d) number of operators and used equipment on walkways or working platforms at the same time;
- e) possibility of operators meeting;
- f) whether or not additional equipment, protective clothing is being worn or personal protective equipment is being carried;
- g) the presence of obstacles;
- h) walkway ending in a dead end;
- i) walls likely to damage or mark operators' clothing;
- j) the need for unrestricted work-movements and the need for space when using foreseeable tools.

In accordance with the values given in ISO 15534-1 and ISO 15534-3, unless exceptional circumstances exist, the minimum head-height, h , over working platforms and walkways shall be 2 100 mm (see [Figure 1](#)). Where space is restricted, [Figure 1](#) provides dimensions to ensure adequate clearance is given in the area around the head.

If an obstacle (e.g. pipe) is crossing the walkway at the head-height, the minimum head-height, h , may be reduced to no less than 1 900 mm. Measures such as padding and warning signs shall be provided.

The clear width, w , of a walkway shall be ≥ 800 mm (see [Figure 1](#)).

When the walkway is usually subject to passage or crossing of several persons simultaneously, the clear width, w , shall be increased to at least 1 000 mm.

Due to the design of the machine, the environment, or the occasional use, e.g. less than 30 days per year and less than two hours per day, the clear width, w , may be reduced from 800 mm to 600 mm (see [Figure 1](#)).

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As an exception, for a short distance less than 2 000 mm, the clear width, w , may be reduced from 600 mm to 500 mm (see [Figure 1](#)).

If the available space at the floor level is restricted due to pipework, electric, or constructive reason of machinery, the walkway width at floor level can be reduced to 500 mm at the minimum and to a maximum height of 200 mm (see [Figure 1](#)).

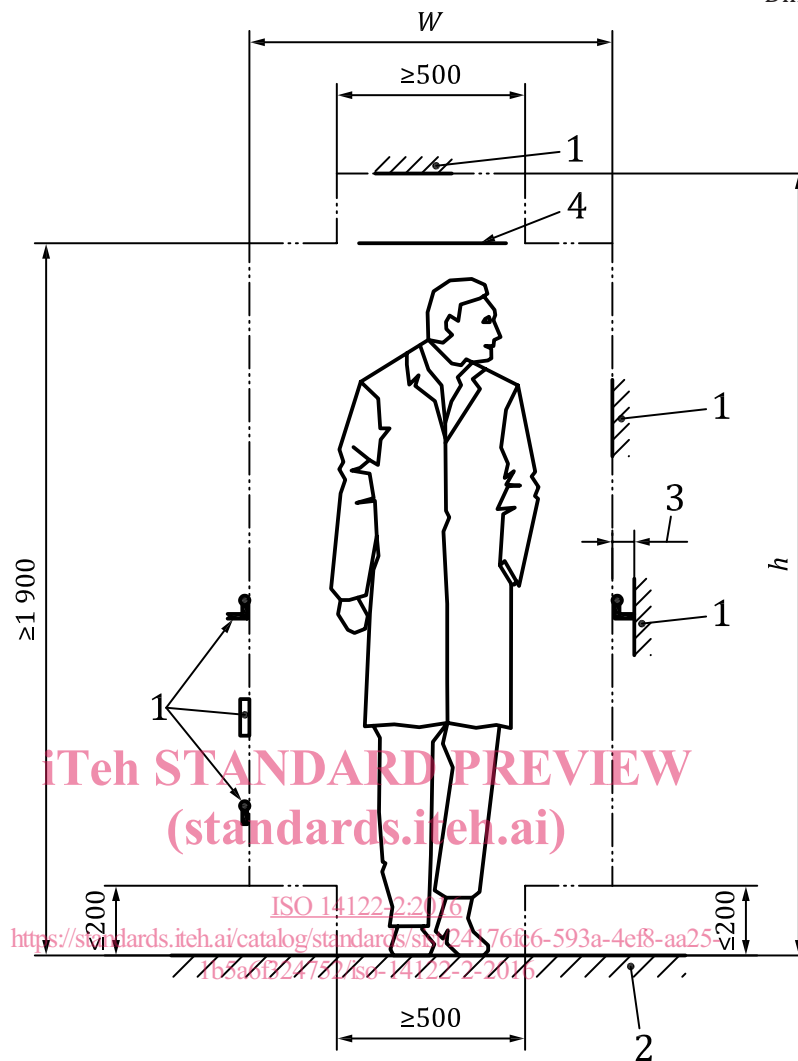
Any obstruction, such as pipes or cable trays fitted along the walkway at either head-height, h , or finished floor level, shall reduce the available width to not less than 500 mm (see [Figure 1](#)).

The width of the walkway, when designated as an escape way, should meet the requirements of appropriate regulations.


If the horizontal walkway is interrupted and the vertical height between the two levels cannot be closed by a stair or ramp, a single step is allowed under the following conditions.

- The single step shall be clearly visible (e.g. by colour, cranked guard-rail).
- The height shall be between 150 mm and 300 mm.

Dimensions in millimetres



Key

-  limitation of the access gauge
- 1 permanent obstruction, such as guard-rail, wall, machine, ceiling
- 2 walkway/platform
- 3 minimum gap between handrail and obstacle
- 4 crossing obstacle
- w clear width
- h head-height

NOTE Obstacles, e.g. pipes crossing the walkway, are omitted.

Figure 1 — Access gauge on walkways

If, by necessity, there are obstacles on a wall or under a ceiling that restrict the required width or height, in order to minimize injury guarding shall be fitted to provide a smooth surface without projections. Moreover, safety measures, e.g. padding, shall be fitted to prevent injuries. Warning signs should also be considered.