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

### Part 1: Choice of fixed means of access between two levels

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

*Partie 1: Choix d'un moyen d'accès fixe entre deux niveaux*

[Revision of first edition (ISO 14122-1:2001) and first edition ISO 14122-1:2001/Amd 1:2010]

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This draft has been developed within the European Committee for Standardization (CEN), and processed under the **CEN lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

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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 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 14122-1 was prepared by Technical Committee ISO/TC 199, Safety of machinery.

This second edition cancels and replaces the first edition which has been technically revised.

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

Part 1: Choice of fixed means of access

Part 2: Working platforms and walkways

Part 3: Stairs, stepladders and guard-rails

Part 4: Fixed ladders

## Introduction

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

This document 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 organisations, market surveillance etc.);

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

- machine users/employers (small, medium and large enterprises);
- machine users/employees (e. g. trade unions, organizations for people 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 document.

In addition this document is intended for standardisation bodies elaborating type-C standards.

The requirements of this document 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 standard is to define the general requirements for safe access to machines. This part of ISO 14122 gives advice 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.

Annex A is informative and contains "Examples of the possible changes in the machine or system to make a better access possible".

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## 1 Scope

This International Standard is applicable to stationary machinery where fixed means of access are necessary.

This International Standard is applicable to means of access which are a part of a machine.

This International Standard may also apply to means of access to that part of the building (e. g. working platforms, walkways, ladders) where the machine is installed, providing the main function of that part of the building is to provide a means of access to the machine.

This part of ISO 14122 defines general requirements for access to machines.

This part of ISO 14122 gives advice 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.

NOTE 1 If no national standard or regulation is applicable this standard may be used also for means of access which are outside the scope of this standard.

This International Standard is applicable also to adjustable parts (e. g. foldable, slidable) and to the movable parts of fixed means of access.

This International Standard is not applicable to lifts, escalators or other devices specially designed to lift persons between two levels.

This International Standard is not applicable to machinery manufactured before the date of its publication.

For the significant hazards covered by this standard, see clause 4.

NOTE 2 For mobile machinery, due to their dimensions and particular conditions of use, specific requirements deviating from this standard can be applied. Therefore it is intended to develop a standard for mobile machinery excluding mobile machinery used in rough terrain. For access to mobile machinery used in rough terrain such earth moving machinery see ISO 2867 and for agriculture machinery see ISO 4254-1.

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

ISO/DIS 14122-3:2013, *Safety of machinery — Permanent means of access to machines — Part 3: Stairs, stepladders and guard-rail*

ISO/DIS 14122-4:2013, *Safety of machinery — Permanent means of access to machine — Part 4: Fixed ladders*

## 3 Terms and definitions

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

### 3.1

#### **fixed ladder**

fixed means of access with an angle of pitch from more than 75° to 90°, whose horizontal elements are rungs

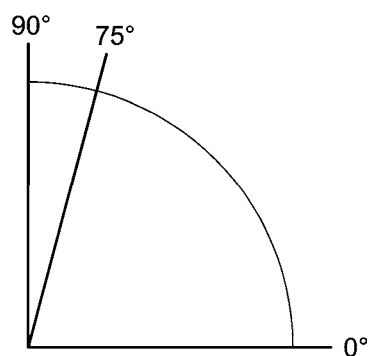


Figure 1 —  $75^\circ < \text{angle of pitch} \leq 90^\circ$

### 3.2 stepladder

fixed means of access with an angle of pitch from more than  $45^\circ$  up to  $75^\circ$ , whose horizontal elements are steps

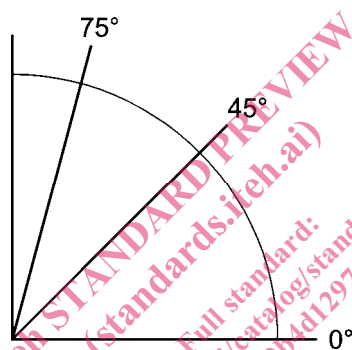


Figure 2 —  $45^\circ < \text{slope angle} \leq 75^\circ$

### 3.3 stair

fixed means of access with an angle of pitch from more than  $20^\circ$  up to  $45^\circ$ , whose horizontal elements are steps

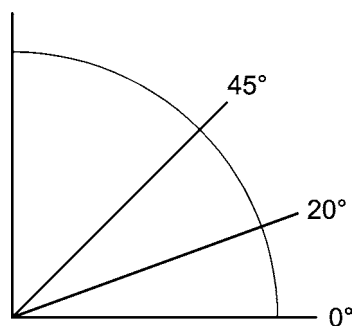


Figure 3 —  $20^\circ < \text{angle of pitch} \leq 45^\circ$



**3.4****ramp**

fixed means of access, comprising a continuous inclined plane having an angle of pitch from more than 0° up to 20°

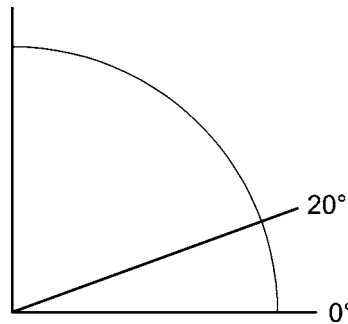


Figure 4 —  $0^\circ < \text{angle of pitch} \leq 20^\circ$

## 4 Significant hazards

The significant hazards to be considered when determining the type and location of the means of access are the following:

- a) falling;
- b) slipping;
- c) tripping;
- d) caused by excessive physical effort, e. g. from climbing a series of fixed ladders;
- e) from falling of materials or objects when they may cause a risk to persons.

Other hazards generated by the machinery e. g. caused by the functioning of the machinery (moving parts of the machine, movement of the machine itself (mobile machines), radiation, hot surface, noise, steam, hot liquids) or caused by its environment (harmful airborne substances) are not covered by this standard but the designer of the machine should consider them, e. g. by preventing the access.

NOTE ISO 12100 gives principles for risk assessment. This part of the standard is primarily aimed at the prevention of persons falling and of excessive physical efforts.

## 5 Requirements for the selection of the fixed means of access

### 5.1 General

There shall be a safe and convenient means of access to all the zones and points of the machine where the need for access can be foreseen during the phases of the "life" of the machinery.

### 5.2 Preferred means of access

The preferred means of access to the machinery shall be in the following order:

- a) access directly from the ground level or from a floor, (for more details see 5.3.1.1 and ISO 14122-2);
- b) stairs, lifts or, ramps, (for more details see 5.4);
- c) stepladders or fixed ladders, (for more details see 5.5).