



SLOVENSKI STANDARD
oSIST prEN 1570-2:2025

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Varnostne zahteve za dvizne mize - 2. del: Dvizne mize za dvigovanje do več kot dveh stalnih nivojev v stavbi, katerih hitrost navpičnega dvigovanja ne presega 0,15 m/s

Safety requirements for lifting tables - Part 2: Lifting tables serving more than 2 fixed landings of a building, for lifting goods with a vertical travel speed not exceeding 0,15 m/s

Sicherheitsanforderungen an Hubtische - Teil 2: Hubtische zum Heben von Gütern, die mehr als 2 Haltestellen eines Gebäudes anfahren und deren Hubgeschwindigkeit 0,15 m/s nicht überschreitet

Exigences de sécurité des tables élévatrices - Partie 2 : Tables élévatrices desservant plus de deux paliers fixes d'un bâtiment utilisées pour transporter des marchandises et dont la vitesse ne dépasse pas 0,15 m/s

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English Version

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This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 10.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword.....	4
Introduction	5
1 Scope	6
2 Normative references	7
3 Terms and definitions	8
4 Safety requirements and/or protective/risk reduction measures.....	11
4.1 General.....	11
4.2 Calculations	11
4.2.1 Stresses	11
4.2.2 Platform deflection.....	13
4.2.3 Stability.....	14
4.3 General requirements for all lifting tables	14
4.3.1 Protection against crushing and shearing	14
4.3.2 High temperatures.....	16
4.3.3 Speed.....	16
4.4 Protection for the travel zone and for the platform	16
4.4.1 General.....	16
4.4.2 Protection from the travel zone at an upper landing.....	17
4.4.3 Protection for the area underneath the platform	17
4.4.4 Platform protection.....	18
4.4.5 Guard-rails.....	18
4.4.6 Screens	19
4.4.7 Opening protections within guard-rails or screens.....	19
4.4.8 Flexible guards.....	21
4.5 Design of the platform	22
4.5.1 General.....	22
4.6 Levels and clearances of fixed landings	22
4.7 Driving system	22
4.7.1 General.....	22
4.7.2 Hydraulic drive system	24
4.7.3 Mechanical drive systems	25
4.7.4 Rope drives.....	26
4.7.5 Tension chain drives.....	27
4.7.6 Rigid chain drives.....	27
4.7.7 Screw drives	27
4.7.8 Rack and pinion drives.....	28
4.7.9 Belt drives.....	28
4.8 Controls.....	28
4.9 Electrical system.....	30
4.9.1 General.....	30
4.9.2 Protection rating	30
4.9.3 Batteries	30
4.10 Safety devices	30
4.10.1 General.....	30
4.10.2 Safety edges.....	30
4.10.3 Maintenance support.....	31

5	Verification of the safety requirements and/or measures	31
5.1	General	31
5.2	Design check	33
5.3	Visual inspection	33
5.4	Practical test	33
5.5	Electrical tests	33
6	Instructions for the user	34
6.1	General	34
6.2	Marking	34
6.3	Instructions for use	35
6.4	Instructions for installation	36
6.5	Instructions for maintenance and inspection	37
	Annex A (normative) Test procedures	39
	Annex B (informative) List of significant hazards	41
	Annex C (normative) Sign pictograms	43
	Annex D (informative) Controls and corresponding pictograms	45
D.1	General	45
D.2	Requirements according to 4.8.3	45
	Annex E (informative) Risk when passing an upper landing	48
	Annex F (informative) Guide to travel zone risks	49
F.1	General	49
F.2	Landing, risk question 1	50
F.3	Landing, risk question 2 and 3	51
F.4	Platform, risk question 4	52
F.5	Platform, risk question 5 and 6	53
	Annex ZA (informative) Relationship between this European Standard and the essential requirements of EU Directive 2006/42/EC aimed to be covered	54
	Bibliography	57

prEN 1570-2:2025 (E)

European foreword

This document (prEN 1570-2:2025) has been prepared by Technical Committee CEN/TC 10 “Lifts, escalators and moving walks”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 1570-2:2016. The significant technical changes to the standard are based mainly on the following points, which are embedded throughout the document:

- the restructuring of the document in line with EN 1570-1:2024;
- the introduction of rated and structural loads;
- a new Annex D - Controls and corresponding pictograms;
- a new Annex E - Risk when passing an upper landing;
- a new Annex F - Guide to travel zone risks;
- where appropriate, risk of falling is now associated with the height of fall rather than the travel height of the machine;
- greater emphasis on protection of the public when the lifting tables are used in public accessible areas;
- the reintroduction of boom barriers and clarity on interlocking and locking requirements for removable guard-rails;
- locking of the lift table when at an upper fixed landing;
- restrictions on the use of pipe rupture protection devices in hydraulic systems;
- update of the drive systems to be in line with EN 1570-1:2024.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZA, which is an integral part of this document.

Introduction

This document is a type-C standard as stated in EN 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 organizations, 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 the 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.

While drafting this document, it was assumed that:

- the lifting tables are only operated by persons trained in the use of the equipment in accordance with the manufacturer's instructions, and that the working area is adequately lit;
- the lifting tables are installed or used on hard standing, even, appropriately prepared surfaces;
- where there are special requirements on low noise levels, such as for hospital applications and theatres, etc., the customer shall specify these requirements and the manufacturer shall then take all appropriate measures.

When provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence over the provisions of the other standards, when machines have been designed and built according to the provisions of this type C standard.

prEN 1570-2:2025 (E)

1 Scope

1.1 This document specifies the safety requirements for lifting tables which fulfil the following characteristics:

- serving more than 2 fixed landings, and
- having a vertical travel speed of no more than 0,15 m/s, unless safe by position, and
- raising or lowering goods and not person(s), and
- only accessible to persons during the loading/unloading phases, and
- permanently installed.

1.2 This document does not apply to the following equipment:

- permanently installed lifting tables, serving specific levels of a construction, with a vertical travel speed exceeding 0,15 m/s (EN 81-31);
- lifting tables serving not more than two fixed landings of a construction (EN 1570-1);
- lifting tables, serving more than 2 fixed landings of a construction for lifting operators, with a vertical travel speed not exceeding 0,15 m/s;
- lifting tables carrying operators and installed in enclosures with a vertical travel speed not exceeding 0,15 m/s;
- lifting tables used on ships;
- lifting tables designed for artists and stage set features during artistic performances.

1.3 This document does not consider the additional requirements for:

- electromagnetic compatibility;
- operation in severe conditions (e.g. strong magnetic fields);
- operation subject to special rules (e.g. potentially explosive atmospheres, mines);
- handling of loads, the nature of which could lead to dangerous situations (e.g. molten metal, acids, radiating materials, particularly brittle loads, loose loads (gravel, tubes));
- hazards occurring during construction, transportation, and disposal;
- equipment installed on the load platform or the replacing or maintaining of it;
- integration into broader systems or other machines, etc.;
- cable-less controls, i.e. wireless;
- lifting tables where the hydraulic pressure is derived directly from gas pressure;
- lifting tables powered by internal combustion engines.

This document is not applicable to lifting tables manufactured before the date of its publication.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

EN 280-1:2022, *Mobile elevating work platforms — Part 1: Design calculations — Stability criteria — Construction — Safety — Examinations and tests*

EN 1493:2022, *Vehicle lifts*

EN 12453:2017+A1:2021, *Industrial, commercial and garage doors and gates — Safety in use of power operated doors — Requirements and test methods*

EN 60204-1:2018, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60224-1:2016)*

EN 60529:1991, *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)*

EN 60947-5-1:2017, *Low-voltage switchgear and controlgear — Part 5-1: Control circuit devices and switching elements — Electromechanical control circuit devices (IEC 60947-5-1:2016, modified)*

EN IEC 60947-5-2:2020,¹ *Low-voltage switchgear and controlgear — Part 5-2: Control circuit devices and switching elements — Proximity switches (IEC 60947-5-2:2019, modified)*

EN 60947-5-3:2013, *Low-voltage switchgear and controlgear — Part 5-3: Control circuit devices and switching elements — Requirements for proximity devices with defined behaviour under fault conditions (PDDb) (IEC 60947-5-3:2013)*

EN 61310-2:2008, *Safety of machinery — Indication, marking and actuation — Part 2: Requirements for marking (IEC 61310:2007)*

EN IEC 61496-1:2020, *Safety of machinery — Electro-sensitive protective equipment — Part 1: General requirements and tests (IEC 61496-1:2020)*

EN IEC 61496-2:2020, *Safety of machinery — Electro-sensitive protective equipment — Part 2: Particular requirements for equipment using active opto-electronic protective devices (AOPDs) (IEC 61496-2:2020)*

EN 61800-5-2:2017, *Adjustable speed electrical power drive systems — Part 5-2: Safety requirements — Functional (IEC 61800-5-2:2016)*

EN ISO 4413:2010, *Hydraulic fluid power — General rules and safety requirements for systems and their components (ISO 4413:2010)*

EN ISO 11161:2007, *Safety of machinery — Integrated manufacturing systems — Basic requirements (ISO 11161:2007)*

EN ISO 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction (ISO 12100:2010)*

¹ As impacted by EN IEC 60947-5-2:2020/A11:2022.

prEN 1570-2:2025 (E)

EN ISO 13849-1:2023, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2023)*

EN ISO 13850:2015, *Safety of machinery — Emergency stop function — Principles for design (ISO 13850:2015)*

EN ISO 13856-2:2013, *Safety of machinery — Pressure-sensitive protective devices — Part 2: General principles for design and testing of pressure-sensitive edges and pressure-sensitive bars (ISO 13856-2:2013)*

EN ISO 13857:2019, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2019)*

EN ISO 14119:2013, *Safety of machinery — Interlocking devices associated with guards — Principles for design and selection (ISO 14119:2013)*

EN ISO 14120:2015, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards (ISO 14120:2015)*

ISO 606:2015, *Short-pitch transmission precision roller and bush chains, attachments and associated chain sprockets*

ISO 4347:2015, *Leaf chains, clevises and sheaves — Dimensions, measuring forces, tensile strengths and dynamic strengths*

ISO 11228-1:2021, *Ergonomics — Manual handling — Part 1: Lifting, lowering and carrying*

ISO 11228-2:2007, *Ergonomics — Manual handling — Part 2: Pushing and pulling*

ISO 2408:2017, *Steel wire ropes — Requirements*

ISO 4301-1:2016, *Cranes — Classification — Part 1: General*

ISO 16625:2013, *Cranes and hoists — Selection of wire ropes, drums and sheaves*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100:2010 and the following apply.

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

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

3.1

lifting table

lifting device with a load supporting platform rigidly guided throughout its travel

EXAMPLE a scissor lift or mast lift

3.2

vertical travel

vertical distance between the lowest and highest fixed landing for which the lifting table is designed

3.3

platform

part of the lifting table designed to accommodate the working load; fork arms are considered as a load platform for goods only

3.4

maintenance support

device that can be set up in such a way that maintenance and repair work below the platform can be carried out safely

3.5

operator

person who is trained and authorized/permitted by the duty holder, to operate the lifting table, according to the manufacturer's instructions

Note 1 to entry: The machine owner is considered as the duty holder.

3.6

fixed landing

permanent level of the construction for loading and unloading the lifting table

3.7

rated load

load that consists of goods that the manufacturer has stated the machine is capable of lifting/lowering when used in accordance with the instruction manual

3.8

structural load

load, excluding rated load, comprising of any equipment that is fixed on the platform

Note 1 to entry: Structural load may include guard-rails, gates, roller conveyors, etc.

Note 2 to entry: Structural load shall be considered as part of the lifting table self-weight.

3.9

guard

part of the machine or the surrounding structure specifically used to provide protection by means of a physical barrier

3.10

toe plate

protection for toes extending vertical from the surface where you standing

3.11

maximum working pressure

highest pressure in the hydraulic system at which it is intended to operate under normal working conditions with rated load and, if any, structural load

3.12

travel zone

space through which the lifting mechanism and load, platform, and any attachment to it moves

prEN 1570-2:2025 (E)**3.13****non-public area**

area to which access is restricted only to persons who are authorized to be in that area, and not accessible to the public

3.14**public area**

space open to persons without specific training, instruction or awareness including children

3.15**travel speed**

average lifting and lowering speed of the platform when measured throughout its normal travel range

3.16**screen**

permanent protection from access to the hazard for the whole body, also called distance guards in EN ISO 14120:2015

3.17**guard-rail**

device for protection against accidental fall or accidental access to a hazardous area, with which stairs, step ladders, landings or platforms and walkways (level surface used for moving from one point to another) may be equipped

3.18**removable guard-rail**

guard-rail designed to be removable without the use of a tool

Note 1 to entry: Bolted guard-rails are not considered removable.

3.19**enclosure**

permanent protection where the whole of the travel zone is protected with rigid guards to make the lifting table inaccessible whilst in operation, i.e., safe by position

3.20**automatically controlled lifting table**

lifting table whose operating sequence is determined by a control program, which can be semi-automatic when operations are initiated by an operator, or fully automatic when no operator intervention is required

3.21**gate**

opening part within a guard-rail, enclosure, or screen, to give access from a landing or a platform

3.22**inward opening gate**

platform mounted opening part of any fall protection that is always opened towards the centre of the platform; and when mounted on a landing, it is opened away from the centre of the platform

3.23**outward opening gate**

platform mounted opening part of any fall protection that is always opened away from the centre of the platform; and when mounted on a landing, it is opened towards the centre of the platform

3.24**safe by position**

condition when a lifting table or any part of a lifting table or load is sufficiently shielded from being reached or accessed during operation, to avoid any hazard to persons or goods according to EN ISO 13857:2019

3.25**externally operated non-return valve**

non-return check valve that can be opened by external means

Note 1 to entry: e.g. actuated electrically or manually

3.26**rigid guarding**

physical, non-flexible, barrier

Note 1 to entry: A physical barrier may be a guard-rail or wall for example.

4 Safety requirements and/or protective/risk reduction measures**4.1 General**

Machinery shall comply with the safety requirements and/or protective/risk reduction measures of this clause. In addition, the machine shall be designed according to the principles of EN ISO 12100:2010 for relevant, but not significant hazards, not dealt with by this document. For significant hazards, also refer to informative Annex B. Informative Annex F can be used as a guide to identify the fundamental travel zone risks.

4.2 Calculations**4.2.1 Stresses**

4.2.1.1 The lifting table shall be designed to consider all failure modes of the material, including fatigue failure and low operating temperatures (e.g. freezer applications).

4.2.1.2 The stresses in any part of the lifting table shall not, under normal working conditions, exceed the lowest of the following values:

- 1) 0,66 times the yield stress of the material used; or
- 2) 0,50 times the ultimate tensile stress of the material used.

4.2.1.3 The stresses shall be calculated for a lifting table carrying its rated load and, if any, structural load whilst being used in compliance with the manufacturer's instructions.

The loads shall include all real static and dynamic forces, both vertical and horizontal, any wind forces, any snow loads and all forces applied to the platform during loading and unloading. In case of extending part(s) of the platform, the calculations shall consider the extension in the worst condition.

If wind forces are to be considered in the calculations, EN 280-1:2022, 4.2.3.3 shall be applied.

prEN 1570-2:2025 (E)

4.2.1.4 The minimum dynamic forces to be used for the calculations set out under 4.2.1.3 shall result from:

- 1) the total vertical load (this includes the rated load and, if any, structural load, and the self-weight of the moving parts of the structure) increased by the dynamic factor for the lift category of lifting tables shown in Table 1;
- 2) the horizontal load coefficient for the category of lifting tables shown in Table 1, taken as acting horizontally at the platform level in the direction causing the maximum stress in the part being considered.

Table 1 — Load factors for lifting tables

Lift category	Dynamic factor	Horizontal load coefficient [in % of the rated load]	Minimum load cycles ^b under full load [× 10 ³]	Application
1	1,4	10	128 ^a	Lifting tables for general purpose.
2	1,1	2,5	8	Lifting tables with a clearly defined lifting load and where other forces can be excluded; height adjustment without systematic lateral forces.
3	1,2	5,0	32	Not applicable (only applicable to EN 1570-1).
4	1,3	10	128	Lifting tables suited for crossing with, e.g. manually operated industrial trucks, electric pallet-stacking trucks with a maximum braking of 10 %. Lifting tables with mounted gravity conveyors.
5	1,4	10	512	Lifting tables suited for a high number of cycles e.g. for fully automatic production lines.
When a lifting table is crossed by vehicles, or is integrated in a handling device, the lateral forces shall be verified in individual cases. Higher horizontal load coefficients have to be established if required.				
^a This minimum number of cycles shall be increased by the manufacturer according to the use of the lifting table.				
^b When load cycle is used, in relation to lifting categories, the lifetime of lifting tables is generally 10 years when maintained in accordance with the manufacturer's instructions.				

When determining the minimum dynamic forces used in the calculations, the following shall be taken into consideration:

- a) where rigid guarding prevents loading or unloading across a side, or other means prevent force transmission to the platform in a particular direction, the horizontal load coefficient in this direction need not be considered;
- b) that lifting tables are classified in 5 categories (called lift category) depending on the use for which they are designed. The dynamic factor, horizontal load coefficient and number of cycles used in the design calculations shall be as defined in Table 1;
- c) any likely wind forces, shall be in addition to the horizontal load coefficient calculations.