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STN	**Bezpečnostné pravidlá na konštrukciu a montáž výťahov Výťahy na prepravu osôb a nákladov Časť 42: Vertikálne zdvíhacie zariadenie s uzavretou nosnou plošinou určené na použitie osobami vrátane osôb so zdravotným postihnutím**	**STN EN 81-42** 27 4003

Safety rules for the construction and installation of lifts - Special lifts for the transport of persons and goods - Part 42: Vertical lifting appliances with enclosed carrier intended for use by persons, including persons with disability

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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English Version

Safety rules for the construction and installation of lifts - Special lifts for the transport of persons and goods - Part 42: Vertical lifting appliances with enclosed carrier intended for use by persons, including persons with disability

Règles de sécurité pour la construction et l'installation des élévateurs - Élévateurs spéciaux pour le transport des personnes et des charges - Partie 42 : Élévateurs verticaux à habitacle clos destiné à l'usage de personnes, y compris de personnes en situation de handicap

Sicherheitsregeln für die Konstruktion und den Einbau von Aufzügen - Spezialaufzüge für die Beförderung von Personen und Gütern - Teil 42: Vertikale Hebezeuge mit geschlossenem Lastträger für Personen und Personen mit Behinderung

This European Standard was approved by CEN on 29 September 2025.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 81-42:2025) has been prepared by Technical Committee CEN/TC 10 “Lifts, escalators and moving walks”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2026, and conflicting national standards shall be withdrawn at the latest by December 2027.

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

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.

This document is part of the EN 81 series of standards. The structure of the EN 81 series is described in CEN/TR 81-10:2008.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Introduction

0.1 General

This document is a type-C standard as stated in EN ISO 12100:2010.

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 case of machinery intended for use by consumers).

The above-mentioned stakeholder groups have been given the possibility to participate in the drafting process of this document.

The machinery concerned and the extent to which hazards, hazardous situations or hazardous events are covered are indicated in the scope of this document.

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

0.2 General remarks

0.2.1 The object of this document is to define safety rules related to passenger lifting appliances with a view to safeguarding persons and objects against the risk of accidents associated with the normal use, maintenance and emergency operation of lifting appliances.

a) Persons to be safeguarded:

   1) users, including passengers, persons waiting at the landings, maintenance and inspection personnel (see EN 13015:2001+A1:2008);

   2) persons at the landings and outside of the well, or any machinery spaces, who can be affected by the lifting appliance.

b) Property to be safeguarded:

   1) loads in carrier;

   2) components of the lifting appliance installation;

   3) building in which the lifting appliance is installed.

0.2.2 A study has been made of the various possible hazards with lifting appliances (see Annex I).

0.3 Principles

0.3.1 In drawing up this document the following principles have been used.

0.3.2 This document does not repeat all the general technical rules applicable to every electrical, mechanical, or building construction including the protection of building elements against fire.

It has, however, been necessary to establish certain requirements of good construction, either because they are peculiar to lifting appliance manufacture or because in the case of lifting appliance utilization the requirements can be more stringent than elsewhere.

0.3.3 As far as possible this document sets out only the requirements that materials and equipment have to meet in the interests of safe operation of lifting appliances.

0.3.4 Risk assessment, terminology and technical solutions have been considered taking into account the methods of EN ISO 12100:2010, EN ISO 14798:2013 and the EN 61508:2010 series of standards.

0.3.5 In order for EN 81-42 to be a widely applicable standard the average mass of a person has been determined to be 75 kg.

0.4 Assumptions

0.4.1 In drawing up this document the following assumptions have been made.

0.4.2 Users have to be safeguarded against their own negligence and unwitting carelessness when using the lifting appliance in the intended way.

A user can, in certain cases, make one imprudent act. The possibility of two simultaneous acts of imprudence and/or the abuse of instructions for use is not considered in this document.

0.4.3 With the exception of the items listed below which have been given special consideration, a mechanical device built according to good practice and the requirements of this document, including uncontrolled slipping of the suspension means on the traction sheave, will not deteriorate to a point of creating hazard without the possibility of detection provided that all of the instructions given by the manufacturer have been duly applied:

a) breakage of the suspension;

b) breakage and slackening of all linkage by auxiliary ropes, chains and belts;

c) failure of one of the mechanical components of the machine brake which take part in the application of the braking action on the drum or disk;

d) failure of a component associated with the main drive elements and the traction sheave;

e) rupture in the hydraulic system (jack excluded);

f) small leakage in the hydraulic system (jack included).

0.4.4 The possibility of the safety gear not engaging, should the carrier free fall from a stationary position at the lowest landing, before the carrier strikes the end stop(s) or buffer(s), if any, is considered acceptable.

0.4.5 The requirements of this document are such that the possibility of a failure of an electric safety device or a safety component complying with all the requirements of this document needs not to be taken into consideration.

1 Scope

1.1 This document specifies safety requirements for design, construction and manufacturing of permanently installed electrically powered vertical lifting appliances affixed to a building structure intended for use by persons, including persons with disability:

— travelling vertically between predefined levels along a guided path whose inclination to the vertical does not exceed 15°;

— supported or sustained by rack and pinion, rope traction drive, noncircular elastomeric-coated suspension means (hereafter called traction belts) traction drive, rope positive drive, chains, timing belts, screw and nut, guided chain or hydraulic jack (direct or indirect);

— with enclosed wells;

— with a rated speed not greater than 0,15 m/s;

— with the carrier completely enclosed;

— with a temperature in the well and in the machinery spaces between +5 °C and +40 °C.

1.2 This document does not specify additional requirements for:

— lightning protection;

— operation subject to ATEX rules;

— lifting appliances whose primary function is the transportation of goods;

— earthquakes, flooding;

— firefighting and evacuation;

— noise and vibrations;

— the transport of type-C wheelchairs as defined in EN 12183:2022 and/or EN 12184:2022;

— vertically sliding doors.

1.3 Components incorporated in a lifting appliance installation are:

a) designed in accordance with usual engineering practice and calculation codes, taking into account all failure modes;

b) of sound mechanical and electrical construction;

c) free of defects.

1.4 This document is not applicable to lifting appliances 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 81-20:2020, *Safety rules for the construction and installation of lifts — Lifts for the transport of persons and goods — Part 20: Passenger and goods passenger lifts*

EN 81-28:2022, *Safety rules for the construction and installation of lifts — Lifts for the transport of persons and goods — Part 28: Remote alarm on passenger and goods passenger lifts*

EN 81-50:2020, *Safety rules for the construction and installation of lifts — Examinations and tests — Part 50: Design rules, calculations, examinations and tests of lift components*

EN 81-58:2022, *Safety rules for the construction and installation of lifts — Examination and tests — Part 58: Landing doors fire resistance test*

EN 81-70:2021+A1:2022, *Safety rules for the construction and installation of lifts — Particular applications for passenger and goods passenger lift — Part 70: Accessibility to lifts for persons including persons with disability*

EN 1993-1-1:2022, *Eurocode 3 — Design of steel structures — Part 1-1: General rules and rules for buildings*

EN 10305-1:2016, *Steel tubes for precision applications — Technical delivery conditions — Part 1: Seamless cold drawn tubes*

EN 10305-2:2016, *Steel tubes for precision applications — Technical delivery conditions — Part 2: Welded cold drawn tubes*

EN 10305-3:2023, *Steel tubes for precision applications — Technical delivery conditions — Part 3: Welded cold sized tubes*

EN 10305-4:2016, *Steel tubes for precision applications — Technical delivery conditions — Part 4: Seamless cold drawn tubes for hydraulic and pneumatic power systems*

EN 10305-6:2016, *Steel tubes for precision applications — Technical delivery conditions — Part 6: Welded cold drawn tubes for hydraulic and pneumatic power systems*

EN 12015:2020, *Electromagnetic compatibility — Product family standard for lifts, escalators and moving walks — Emission*

EN 12016:2013, *Electromagnetic compatibility — Product family standard for lifts, escalators and moving walks — Immunity*

EN 12385-1:2002+A1:2008, *Steel wire ropes — Safety — Part 1: General requirements*

EN 12385-5:2021+A1:2025, *Steel wire ropes — Safety — Part 5: Stranded ropes for lifts*

EN 12600:2002, *Glass in building — Pendulum test — Impact test method and classification for flat glass*

EN 13411-3:2022, *Terminations for steel wire ropes — Safety — Part 3: Ferrules and ferrule-securing*

EN 13411-6:2004+A1:2008, *Terminations for steel wire ropes — Safety — Part 6: Asymmetric wedge socket*

EN 13411-7:2021, *Terminations for steel wire ropes — Safety — Part 7: Symmetric wedge socket*

EN 13411-8:2011, *Terminations for steel wire ropes — Safety — Part 8: Swage terminals and swaging*

EN 13501-1:2018, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

EN 16005:2023+A1:2024, *Power operated pedestrian doorsets — Safety in use — Requirements and test methods*

EN 50214:2006,[1] *Flat polyvinyl chloride sheathed flexible cables*

EN 50274:2002,[2] *Low-voltage switchgear and controlgear assemblies — Protection against electric shock — Protection against unintentional direct contact with hazardous live parts*

EN 60118-4:2015,[3] *Electroacoustics — Hearing aids — Part 4: Induction-loop systems for hearing aid purposes — System performance requirements (IEC 60118-4:2014)*

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

EN 60529:1991,[4] *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)*

EN IEC 60664-1:2020, *Insulation coordination for equipment within low-voltage supply systems — Part 1: Principles, requirements and tests (IEC 60664-1:2020)*

EN IEC 60947-4-1:2019,[5] *Low-voltage switchgear and controlgear — Part 4-1: Contactors and motor-starters — Electromechanical contactors and motor-starters (IEC 60947-4-1:2018)*

EN 60947-5-1:2017,[6] *Low-voltage switchgear and controlgear — Part 5-1: Control circuit devices and switching elements — Electromechanical control circuit devices (IEC 60947-5-1:2016)*

EN 60947-5-5:1997,[7] *Low-voltage switchgear and controlgear — Part 5-5: Control circuit devices and switching elements — Electrical emergency stop device with mechanical latching function (IEC 60947-5-5:1997)*

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1 As impacted by EN 50214:2006/AC:2007.

2 As impacted by EN 50274:2002/AC:2009.

3 As impacted by EN 60118-4:2015/A1:2018.

4 As impacted by EN 60529:1991/A1:2000, EN 60529:1991/AC:2016, EN 60529:1991/A2:2013, EN 60529:1991/A2:2013/AC:2019.

5 As impacted by EN IEC 60947-4-1:2019/AC:2020, EN IEC 60947-4-1:2019/AC:2021.

6 As impacted by EN 60947-5-1:2017/AC:2020.

7 As impacted by EN IEC 60947-5-5:1997/A1:2005, EN IEC 60947-5-5:1997/A11:2013, EN IEC 60947-5-5:1997/A2:2017.

EN 61310-3:2008, *Safety of machinery — Indication, marking and actuation — Part 3: Requirements for the location and operation of actuators (IEC 61310-3:2007)*

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

EN 61810-1:2015,[8] *Electromechanical elementary relays — Part 1: General and safety requirements (IEC 61810-1:2015)*

EN 61810-3:2015, *Electromechanical elementary relays — Part 3: Relays with forcibly guided (mechanically linked) contacts (IEC 61810-3:2015)*

EN ISO 6743-4:2015, *Lubricants, industrial oils and related products (class L) — Classification — Part 4: Family H (Hydraulic systems) (ISO 6743-4:2015)*

EN ISO 7010:2020, *Graphical symbols — Safety colours and safety signs — Registered safety signs (ISO 7010:2019, Corrected version 2020-06)*

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

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

EN ISO 14122-2:2016, *Safety of machinery — Permanent means of access to machinery — Part 2: Working platforms and walkways (ISO 14122-2:2016)*

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

ISO 1219-1:2012,[9] *Fluid power systems and components — Graphical symbols and circuit diagrams — Part 1: Graphical symbols for conventional use and data-processing applications*

ISO 3108:2017, *Steel wire ropes — Test method — Determination of measured breaking force*

ISO 3864-1:2011, *Graphical symbols — Safety colours and safety signs — Part 1: Design principles for safety signs and safety markings*

ISO 4190-5:2006, *Lift (Elevator) installation — Part 5: Control devices, signals and additional fittings*

ISO 4344:2022, *Steel wire ropes for lifts — Minimum requirements*

ISO 6336-1:2019, *Calculation of load capacity of spur and helical gears — Part 1: Basic principles, introduction and general influence factors*

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[8] As impacted by EN 61810-1:2015/AC:2017, EN 61810-1:2015/AC:2018, EN 61810-1:2015/A1:2020.

[9] As impacted by ISO 1219-1:2012/A1:2016.

ISO 6336-2:2019, *Calculation of load capacity of spur and helical gears — Part 2: Calculation of surface durability (pitting)*

ISO 6336-3:2019, *Calculation of load capacity of spur and helical gears — Part 3: Calculation of tooth bending strength*

ISO 6336-5:2016, *Calculation of load capacity of spur and helical gears — Part 5: Strength and quality of materials*

ISO 7000:2019, *Graphical symbols for use on equipment — Registered symbols*

IEC 60227-6:2001, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V — Part 6: Lift cables and cables for flexible connections*

IEC 60364-4-41:2005+AMD1:2017, *Low voltage electrical installations — Part 4-41: Protection for safety — Protection against electric shock*

IEC 60364-4-42:2010+AMD1:2014, *Low-voltage electrical installations — Part 4-42: Protection for safety — Protection against thermal effects*

IEC 60617-13:1993, *Graphical symbols for diagrams — analogue elements*