LIFTIDE VALMISTAMISE JA PAIGALDAMISE OHUTUSEESKIRJAD. INIMESTE JA KAUBA TRANSPORDI ERILIFTID. OSA 40: LIIKUMISPUUDEGA INIMESTELE MÕELDUD TREPILIFTID JA KALDEGA LIFTIPLATVORMID

Safety rules for the construction and installation of lifts - Special lifts for the transport of persons and goods - Part 40: Stairlifts and inclined lifting platforms intended for persons with impaired mobility

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 81-40:2020 sisaldab Euroopa standardi EN 81-40:2020 ingliskeelset teksti.	This Estonian standard EVS-EN 81-40:2020 consists of the English text of the European standard EN 81-40:2020.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 16.09.2020.	Date of Availability of the European standard is 16.09.2020.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 11.180.10, 91.140.90

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 81-40

September 2020

ICS 91.140.90; 11.180.10

Supersedes EN 81-40:2008

English Version

Safety rules for the construction and installation of lifts - Special lifts for the transport of persons and goods - Part 40: Stairlifts and inclined lifting platforms intended for persons with impaired mobility

Règles de sécurité pour la construction et l'installation des élévateurs - Élévateurs spéciaux pour le transport des personnes et des charges - Partie 40 : Ascensièges et plates-formes élévatrices inclinées à l'usage des personnes à mobilité réduite

Sicherheitsregeln für die Konstruktion und den Einbau von Aufzügen - Spezielle Aufzüge für den Personen- und Gütertransport - Teil 40: Treppenschrägaufzüge und Plattformaufzüge mit geneigter Fahrbahn für Personen mit Behinderungen

This European Standard was approved by CEN on 29 June 2020.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Ref. No. EN 81-40:2020 E

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European foreword

This document (EN 81-40:2020) 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 March 2021, and conflicting national standards shall be withdrawn at the latest by September 2022.

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 supersedes EN 81-40:2008.

EN 81-40:2020 constitutes a full revision of the standard. The main changes from the previous edition are:

— support for screw and nut drive has been removed;

— verification tests have been added for static overload, chair levelling, edges and surfaces and self-sustaining system;

— requirements for the interface of the stairlift in the building have been added;

— a requirement for lightning protection has been added;

— all normative references to other standards have been dated;

— a new Annex ZA, including a detailed Table ZA.1, has been developed.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

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, Turkey and the United Kingdom.

Introduction

The population of Europe is ageing and the prevalence of disability, including disability associated with the ageing process, is increasing. Older people and people with disabilities at present are estimated to number some 80 million people – a large and growing proportion of the European Union population. The changing demography presents both opportunities and challenges for the Union. The economic, social and cultural potential of older people and people with disabilities is underexploited at present. However, there is a growing recognition that society needs to exploit this potential for the economic and social benefit of society generally.

This is one of the reasons that led to this document on vertical lifting platforms for people with impaired mobility being one means to provide accessibility to buildings.

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 at 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.

Assumptions

With the aim of clarifying the intentions of the standard and avoiding doubts when reading it, the following assumptions were made when producing it:

a) components without specific requirements are:

   1) designed in accordance with the usual engineering practice and calculation codes, including all failure modes;

   2) of sound mechanical and electrical construction;

b) general electrical hazards are dealt with according to B level electrical safety standards;

c) components are kept in good repair and working order, in accordance with the maintenance manual, so that the required characteristics remain despite wear;

d) by design of the load bearing elements, a safe operation of the machine is ensured throughout the entire maximum working load range;

e) a mechanical device built according to good practice and the requirements of the standard, will not deteriorate to a point of creating a hazard without the possibility of detection;

f) the ambient temperature is between 0 °C and +40 °C, at the place of use of the machinery;

g) Negotiation occurs between the manufacturer (the person applying the CE mark) and the user concerning the specificity of the use and places of use of the stairlift:

   1) suitability for user (see Annex D);

   2) the place of installation allows a safe use for the machine (see Annex C);

   3) any additional fire protection requirements.

1 Scope

1.1 This document deals with safety requirements for construction, manufacturing, installation, maintenance and dismantling of electrically operated stairlifts (chair, standing platform and wheelchair platform) affixed to a building structure, moving in an inclined plane and intended for use by persons with impaired mobility:

— travelling over a stair or an accessible inclined surface;

— intended for use by one person;

— whose carriage is directly retained and guided by a guide rail or rails;

— supported or sustained by rope (5.4.4), rack and pinion (5.4.5), chain (5.4.6), friction/traction drive (5.4.7), and guided rope and ball (5.4.8).

1.2 This document identifies hazards as listed in Clause 4 which arise during the various phases in the life of such equipment and describes methods for the elimination or reduction of these hazards when used as intended by the manufacturer.

1.3 This document does not specify the additional requirements for:

— operation in severe conditions (e.g. extreme climates, strong magnetic fields);

— operation subject to special rules (e.g. potentially explosive atmospheres);

— handling of materials, the nature of which could lead to dangerous situations;

— use of energy systems other than electricity;

— hazards occurring during manufacture;

— earthquakes, flooding, fire;

— evacuation during a fire;

— stairlifts for goods only;

— concrete, hardcore, timber or other foundation or building arrangement;

— design of anchorage bolts to the supporting structure.

NOTE For the actual type of machinery, noise is not considered a significant nor relevant hazard.

1.4 This document is not applicable to power operated stairlifts which are manufactured before the date of publication of this document by CEN.

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

EN 1021-2:2014, *Furniture — Assessment of the ignitability of upholstered furniture — Part 2: Ignition source match flame equivalent*

EN 12385-4:2002+A1:2008, *Steel wire ropes — Safety — Part 4: Stranded ropes for general lifting applications*

EN 16005:2012/AC:2015, *Power operated pedestrian doorsets — Safety in use — Requirements and test methods*

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

EN 60529:1991[1], *Degrees of protection provided by enclosures (IP Code)*

EN 60664-1:2007, *Insulation coordination for equipment within low-voltage systems — Part 1: Principles, requirements and tests (IEC 60664-1:2007)*

EN 60695-11-10:2013, *Fire hazard testing — Part 11-10: Test flames — 50 W horizontal and vertical flame test methods (IEC 60695-11-10:2013)*

EN 60747-5 (all parts*), Discrete semiconductor devices and integrated circuits — Part 5: Optoelectronic devices (IEC 60747-5 all parts)*

EN 60947-1:2007[2], *Low-voltage switchgear and controlgear — Part 1: General rules (IEC 60947-1:2007)*

EN 60947-4-1:2010/A1:2012, *Low-voltage switchgear and controlgear — Part 4-1: Contactors and motor-starters — Electromechanical contactors and motor-starters (IEC 60947-4-1:2009/A1:2012)*

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)*

EN 61249-2-1:2005, *Materials for printed boards and other interconnecting structures — Part 2-1: Reinforced base materials, clad and unclad — Phenolic cellulose paper reinforced laminated sheets, economic grade, copper-clad (IEC 61249-2-1:2005)*

[1] This document is impacted by the amendments EN 60529:1991/A1:2000 and EN 60529:1991/A2:2013 and the corrigendum EN 60529:1991/AC:2016-12.

[2] This document is impacted by the amendments EN 60947-1:2007/A1:2011 and EN 60947-1:2007/A2:2014.

EN 61508-2:2010, *Functional safety of electrical/electronic/programmable electronic safety-related systems — Part 2: Requirements for electrical/electronic/programmable electronic safety-related systems (IEC 61508-2:2010)*

EN 61508-3:2010, *Functional safety of electrical/electronic/programmable electronic safety-related systems — Part 3: Software requirements (IEC 61508-3:2010)*

EN IEC 61558-1:2019, *Safety of transformers, reactors, power supply units and combinations thereof — Part 1: General requirements and tests (IEC 61558-1:2017)*

EN 62305 (all parts), *Protection against lightning (IEC 62305)*

EN 62326-1:2002, *Printed boards — Part 1: Generic specification (IEC 62326-1:2002)*

EN ISO 9773:1998[3], *Plastics — Determination of burning behaviour of thin flexible vertical specimens in contact with a small-flame ignition source (ISO 9773:1998)*

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

EN ISO 13854:2019, *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body (ISO 13854:2017)*

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

ISO 9772:2012, *Cellular plastics — Determination of horizontal burning characteristics of small specimens subjected to a small flame*

IEC 60417:2002 DB, *Graphical symbols for use on equipment*

IEC 60617 (all parts), *Graphical symbols for diagrams*

3 Terms and definitions

For the purposes of this document, the definitions given in EN ISO 12100:2010, EN 81-20:2020 and the following apply.

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

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

[3] This document is impacted by the amendment EN ISO 9773:1998/A1:2003.