

Eskalaatorite ja sõidukonveierite ohutus. Osa 1: Valmistamine ja paigaldamine

Safety of escalators and moving walks - Part 1: Construction and installation

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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English Version

**Safety of escalators and moving walks - Part 1: Construction
and installation**

Sécurité des escaliers mécaniques et trottoirs roulants -
Partie 1: Construction et installation

Sicherheit von Fahrtreppen und Fahrsteigen - Teil 1:
Konstruktion und Einbau

This European Standard was approved by CEN on 29 May 2008 and includes Amendment 1 approved by CEN on 23 February 2010.

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Foreword

This document (EN 115-1:2008+A1:2010) 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of an identical text or by endorsement, at the latest by September 2010, and conflicting national standards shall be withdrawn at the latest by September 2010.

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

This document includes Amendment 1, approved by CEN on 2010-02-23.

This document supersedes ^{A1} EN 115:2008 ^{A1}.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ^{A1} ^{A1}.

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).

^{A1} For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document. ^{A1}

This standard is part of the EN 115 series of standards: "*Safety of escalators and moving walks*".

^{A1} *deleted text* ^{A1}

According to the CEN/CENELEC Internal Regulations, the national standards organizations 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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

This standard is a Type C standard as stated in EN ISO 12100-1.

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

When the provisions of this 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, for machines that have been designed and built according to the provisions of this type C standard.

The purpose of this standard is to define safety requirements for escalators and moving walks in order to safeguard people and objects against risks of accidents during installation, operation, maintenance and inspection work.

The contents of this standard are based on the assumption that persons using escalators and moving walks are able to do so unaided. However, physical and sensory abilities in a population can vary over a wide range, escalators and moving walks are also likely to be used by persons with a range of other disabilities.

Some individuals, in particular older people, might have more than one impairment. Some individuals are not able to use an escalator or moving walk independently and rely on assistance/support being provided by a companion. Furthermore some individuals can be encumbered by objects or be responsible for other persons, which can affect their mobility. The extent to which an individual is incapacitated by impairments and encumbrances often depends on the usability of products, facilities and the environment.

The use of wheelchairs on escalators and moving walks can lead to dangerous situations which cannot be mitigated by machine designs and therefore should not be permitted.

The use of lifts is the preferred method of vertical travel for most people with disabilities and in particular wheelchair users and persons with guide dogs.

Additional signs should be provided to indicate the location of other facilities, these facilities should be in close proximity to the escalators and moving walks and easy to find.

It is assumed that negotiations have been made for each contract between the customer and the supplier/installer (see also Annex A) about:

- a) intended use of the escalator or moving walk;
- b) environmental conditions;
- c) civil engineering problems;
- d) other aspects related to the place of installation.

If escalators or moving walks are intended to be operated under special conditions, such as directly exposed to the weather or explosive atmosphere, or in exceptional cases serve as emergency exits, appropriate design criteria, components, materials and instructions for use should be used that satisfy the particular conditions.

An Interpretation Committee has been established to clarify, if necessary, the spirit in which the clauses of the standard have been drafted and to specify the requirements appropriate to particular cases. Interpretation Requests can be sent to the National Standard Bodies which will contact the responsible Technical Committee CEN/TC 10. The formats of an interpretation request and the interpretation are given in Annex L.

1 Scope

1.1 This standard is applicable for new escalators and moving walks (pallet or belt type) as defined in Clause 3.

This standard deals with all significant hazards, hazardous situations and events relevant to escalators and moving walks when they are used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer (see Clause 4).

1.2 This standard does not deal with hazards arising from seismic activities.

1.3 This document is not applicable to escalators and moving walks which were manufactured before the date of its publication as EN. It is, however, recommended that existing installations be adapted to this standard.

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.

A1 deleted text **A1**

EN 1929-2, *Basket trolleys — Part 2: Requirements, tests and inspection for basket trolleys with or without a child carrying facility, intended to be used on passenger conveyors*

EN 1929-4, *Basket trolleys — Part 4: Requirements and tests for basket trolleys with additional goods carrying facility(ies), with or without a child carrying facility, intended to be used on passenger conveyors*

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

EN 10025-1, *Hot rolled products of structural steels — Part 1: General technical delivery conditions*

EN 10025-2, *Hot rolled products of structural steels — Part 2: Technical delivery conditions for non-alloy structural steels*

EN 10025-3, *Hot rolled products of structural steels — Part 3: Technical delivery conditions for normalized/normalized rolled weldable fine grain structural steels*

EN 10025-4, *Hot rolled products of structural steels — Part 4: Technical delivery conditions for thermomechanical rolled weldable fine grain structural steels*

EN 10025-5, *Hot rolled products of structural steels — Part 5: Technical delivery conditions for structural steels with improved atmospheric corrosion resistance*

EN 10025-6, *Hot rolled products of structural steels — Part 6: Technical delivery conditions for flat products of high yield strength structural steels in the quenched and tempered condition*

EN 10083-1, *Steels for quenching and tempering — Part 1: General technical delivery conditions*

EN 10083-2, *Steels for quenching and tempering — Part 2: Technical delivery conditions for non alloy steels*

EN 10083-3, *Steels for quenching and tempering — Part 3: Technical delivery conditions for alloy steels*

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

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

EN 13015:2001, *Maintenance for lifts and escalators — Rules for maintenance instructions*

EN 13501-1:2007, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

EN 60068-2-6:1995, *Environmental testing — Part 2: Tests — Tests Fc: Vibration (sinusoidal) (IEC 60068-2-6:1995 + Corrigendum 1995)*

EN 60068-2-14:1984 + A1:1986, *Environmental testing — Part 2: Tests — Test N: Change of temperature (IEC 60068-2-14:1984 + A1:1986)*

EN 60068-2-27:1993, *Basic environmental testing procedures — Part 2: Tests — Test Ea and guidance: Shock (IEC 60068-2-27:1987)*

EN 60068-2-29:1987, *Basic environmental testing procedures — Part 2: Tests; Test Eb and guidance: Bump (IEC 60068-2-29:1987)*

EN 60204-1:2006, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2005, modified)*

EN 60269-1, *Low-voltage fuses - Part 1: General requirements (IEC 60269-1:2006)*

EN 60439-1:1999, *Low-voltage switchgear and controlgear assemblies — Part 1: Type-tested and partially type-tested assemblies (IEC 60439 1:1999)*

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

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

EN 60947-4-1, *Low-voltage switchgear and controlgear — Part 4-1: Contactors and motor-starters; Electromechanical contactors and motor-starters (IEC 60947-4-1:2000)*

EN 60947-5-1, *Low-voltage switchgear and controlgear - Part 5-1: Control circuit devices and switching elements — Electromechanical control circuit devices (IEC 60947-5-1:2003)*

EN 61249 series, *Materials for printed boards and other interconnecting structures (IEC 61249 series)*

EN 61558-1:2005, *Safety of power transformers, power supplies, reactors and similar products — Part 1: General requirements and tests (IEC 61558-1:2005)*

EN 62061, *Safety of machinery — Functional safety of safety-related electrical, electronic and programmable electronic control systems (IEC 62061:2005)*

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

EN ISO 12100-1:2003, *Safety of machinery — Basic concepts, general principles for design — Part 1: Basic terminology, methodology (ISO 12100-1:2003)*

EN ISO 12100-2:2003, *Safety of machinery — Basic concepts, general principles for design — Part 2: Technical principles (ISO 12100-2:2003)*

EN ISO 13850, *Safety of machinery — Emergency stop — Principles for design (ISO 13850:2006)*

EN ISO 13857:2006, *Safety of machinery — Safety distances to prevent hazard zones being reached by the upper and lower limbs* (ISO 13857:2008)

ISO 3864-1, *Graphical symbols — Safety colours and safety signs - Part 1: Design principles for safety signs in workplaces and public areas* (Note: Corrected and reprinted in 2003-12)

ISO 3864-3, *Graphical symbols — Safety colours and safety signs — Part 3: Design principles for graphical symbols for use in safety signs*

HD 21.3 S3, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V — Part 3: Non-sheathed cables for fixed wiring* (IEC 60227-3:1993, modified)

HD 21.4 S2, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V — Part 4: Sheathed cables for fixed wiring*

HD 21.5 S3, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V — Part 5: Flexible cables (cords)* (IEC 60227-5:1979, modified)

HD 22.4 S4, *Cables of rated voltages up to and including 450/750 V and having crosslinked insulation — Part 4: Cords and flexible cables*

HD 60364-4-41, *Low-voltage electrical installations — Part 4-41: Protection for safety — Protection against electric shock* (IEC 60364-4-41:2005, modified)

IEC 60747-5-5, *Semiconductor devices — Discrete devices — Part 5-5: Optoelectronic devices — Photocouplers* (NOTE: This standard is intended to be published unmodified as an EN 60747-5-5.)

3 Terms and definitions - Symbols and abbreviations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100-1:2003 and the following apply.

3.1.1

angle of inclination

maximum angle to the horizontal in which the steps, the pallets or the belt move

3.1.2

balustrade

part of the escalator/moving walk which ensures the user's safety by providing stability, protecting from moving parts and supporting the handrail

3.1.3

balustrade decking

transverse member of the balustrade which meets the handrail guidance profile and which forms the top cover of the balustrade

3.1.4

brake load

load on the step/pallet/belt which the brake system is designed to stop the escalator/moving walk

3.1.5 a

comb

pronged section at each landing that meshes with the grooves