

Energy performance of lifts, escalators and moving walks - Part 2: Energy calculation and classification for lifts (elevators) (ISO 25745-2:2015 + ISO 25745-2:2015/Amd 1:2023)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 25745-2:2015+A1:2023 sisaldab Euroopa standardi EN ISO 25745-2:2015 ja selle muudatuse A1:2023 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 25745-2:2015+A1:2023 consists of the English text of the European standard EN ISO 25745-2:2015 and its amendment A1:2023.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 08.04.2015, muudatus A1 18.10.2023.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation. Date of Availability of the European standard is 08.04.2015, for A1 18.10.2023.
Muudatusega A1 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega A1 A1 . Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The start and finish of text introduced or altered by amendment A1 is indicated in the text by tags A1 A1 . The standard is available from the Estonian Centre for Standardisation and Accreditation.

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English Version

Energy performance of lifts, escalators and moving walks -
Part 2: Energy calculation and classification for lifts
(elevators) (ISO 25745-2:2015 + ISO 25745-2:2015/Amd
1:2023)

Performance énergétique des ascenseurs, escaliers
mécaniques et trottoirs roulants - Partie 2: Calcul
énergétique et classification des ascenseurs (ISO
25745-2:2015 + ISO 25745-2:2015/Amd 1:2023)

Energieeffizienz von Aufzügen, Fahrtreppen und
Fahrsteigen - Teil 2: Energieberechnung und
Klassifizierung von Aufzügen (ISO 25745-2:2015 + ISO
25745-2:2015/Amd 1:2023)

This European Standard was approved by CEN on 22 November 2014. Amendment A1 was approved by CEN on 15 October 2023.

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This European Standard and its Amendment A1 exist 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

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

Foreword

This document (EN ISO 25745-2:2015) has been prepared by Technical Committee ISO/TC 178 “Lifts, escalators and moving walks” in collaboration with 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 October 2015, and conflicting national standards shall be withdrawn at the latest by October 2015.

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Endorsement notice

The text of ISO 25745-2:2015 has been approved by CEN as EN ISO 25745-2:2015 without any modification.

A1 Amendment A1 European foreword

This document (EN ISO 25745-2:2015/A1:2023) has been prepared by Technical Committee ISO/TC 178 "Lifts, escalators and moving walks" in collaboration with Technical Committee CEN/TC 10 "Lifts, escalators and moving walks" the secretariat of which is held by AFNOR.

This Amendment to the European Standard EN ISO 25745-2:2015 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2024, and conflicting national standards shall be withdrawn at the latest by April 2024.

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Endorsement notice

The text of ISO 25745-2:2015/Amd 1:2023 has been approved by CEN as EN ISO 25745-2:2015/A1:2023 without any modification. **A1**

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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The committee responsible for this document is ISO/TC 178, *Lifts, escalators and moving walks*.

ISO 25745 consists of the following parts, under the general title *Energy performance of lifts, escalators and moving walks*:

- *Part 1: Energy measurement and verification*
- *Part 2: Energy calculation and classification for lifts (elevators)*
- *Part 3: Energy calculation and classification for escalators and moving walks*

A1 Amendment A1 foreword

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This document was prepared by Technical Committee ISO/TC 178, *Lifts, escalators and moving walks*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 10, *Lifts, escalators and moving walks*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

A list of all parts in the ISO 25745 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html. **A1**

Introduction

This International Standard has been prepared in response to the rapidly increasing need to ensure and to support the efficient and effective use of energy. This International Standard provides

- a) a method to estimate energy consumption on a daily and an annual basis for lifts, and
- b) a method for energy classification of new, existing, or modernised lifts.

This International Standard is intended to be a reference for the following parties:

- building developers/owners to evaluate the energy consumption of various lifts;
- building owners and service companies when modernising installations including reduction of energy consumption
- the installers and maintenance providers of lifts;
- consultants and architects involved in specification of lifts.
- inspectors and other third parties providing energy classification services.

The total energy consumption over the entire life cycle of lifts consists of the energy to manufacture, install, operate, and the disposal of lifts. However, for the purpose of this International Standard, only operating energy (running, idle, and standby) performance is considered.

In the preparation of this International Standard, Technical Committee ISO/TC 178, Subcommittee WG10 has initiated extensive research, which included over 4 500 simulations of typical lift installations. The results of this research have been used to provide the numerical values shown in Tables 2 to 4.

This International Standard only considers traction, hydraulic and positive drive lifts, but can be used as a reference for alternative technologies.

This International Standard can be used in relationship with national/regional jurisdictional energy performance purposes.

It is assumed that whenever the energy performance of a lift is assessed to this International Standard, all components of the lift have been designed in accordance with usual engineering practice and calculation codes, are of sound mechanical and electrical construction, are made of materials with adequate strength and of suitable quality, are free of defects, are kept in good repair and working order, and have been selected and installed so that foreseeable environmental influences and special working conditions have been considered.

Energy Performance of Lifts —

Part 2: Energy Calculation and Classification for Lifts (Elevators)

1 Scope

This part of ISO 25745 specifies the following:

- a) a method to estimate energy consumption based on measured values, calculation, or simulation, on an annual basis for traction, hydraulic, and positive drive lifts on a single unit basis;
- b) energy classification system for new, existing, and modernized traction, hydraulic, and positive drive lifts on a single unit basis;

This part of ISO 25745 applies to passenger and goods passenger lifts with rated speeds greater than 0,15 m/s and only considers the energy performance during the operational portion of the life cycle of the lifts.

NOTE For other types of lifts (e.g. service lifts, lifting platforms, etc.), this part of ISO 25745 can be taken as a reference.

This part of ISO 25745 does not cover energy aspects, which affect the measurements, calculations, and simulations, such as the following:

- a) hoistway lighting;
- b) heating and cooling equipment in the lift car;
- c) machine room lighting;
- d) machine room heating, ventilation, and air conditioning;
- e) non-lift display systems, CCTV security cameras, etc.;
- f) non-lift monitoring systems (e.g. building management systems, etc.);
- g) effect of lift group dispatching on energy consumption;
- h) environmental conditions;
- i) consumption through the power sockets;
- j) **deleted text**

deleted text

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 25745-1, *Energy performance of lifts, escalators and moving walks — Part 1: Energy measurement and verification*

3 Terms, definitions

For the purposes of this document, the terms and definitions given in ISO 25745-1 and the following apply.

NOTE For symbols, see Annex C.

3.1

average cycle

cycle of one up and one down trip each covering the average travel distance of the target installation including two complete door cycles

3.2

express zone

Ⓐ section of the lift well whose distance between two adjacent landings exceeds three average floor distances Ⓐ

3.3

load factor

ratio between the running energy used by a car carrying an average load and the running energy with an empty car

Note 1 to entry: The average load that a car carries is given in Table Ⓐ 4 Ⓐ.

3.4

short cycle

cycle during which the empty car is run for a travel distance of at least one-quarter of the total travel height with the travel distance centred around the mid-point of the travel height and back to the starting point over a sufficient distance for the lift car to reach stable rated speed in both directions including two complete door cycles

3.5

trip(s)

movement(s) from a starting (departure) landing to the next stopping (arrival) landing not including re-levelling

4 Data collection and analysis tools

The energy values (running energy, idle, 5 min standby, and 30 min standby power) used to estimate annual energy consumption can be obtained using the energy measurement methodologies as specified in ISO 25745-1 or by calculation or simulation.

Energy measurements can be taken during commissioning of a new lift or during the life of an existing lift or on a test facility.