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Australian STANDARD®

Energy performance of lifts, escalators and moving walks

Part 2: Energy calculation and classification for lifts (elevators)

STANDARDS Australia

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Australasian Fire and Emergency Service Authorities Council
Australian Building Codes Board
Australian Chamber of Commerce and Industry
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Engineers Australia
Lift Engineering Society of Australia
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Preface

This Standard was prepared by the Standards Australia Committee ME-004, Lift Installations.

The objective of this Standard is to specify 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 Standard 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 1 For other types of lifts (e.g. service lifts, lifting platforms, etc.), this Standard can be taken as a reference.

This Standard does not cover energy aspects, which affect the measurements, calculations, and simulations, such as the following:

(i) Hoistway lighting.

(ii) Heating and cooling equipment in the lift car.

(iii) Machine room lighting.

(iv) Machine room heating, ventilation, and air conditioning.

(v) Non-lift display systems, CCTV security cameras, etc.

(vi) Non-lift monitoring systems (e.g. building management systems, etc.).

(vii) Effect of lift group dispatching on energy consumption.

(viii) Environmental conditions.

(ix) Consumption through the power sockets.

(x) Lifts whose travel includes an express zone.

NOTE 2 An express zone is unlikely to affect the average car load but can significantly affect the average travel distance.

This Standard is identical with, and has been reproduced from, ISO 25745-2:2015, *Energy performance of lifts, escalators and moving walks — Part 2: Energy calculation and classification for lifts (elevators)*.

As this document has been reproduced from an International Standard, the following applies:

(A) In the source text “this part of ISO 25745” should read “this Australian Standard”.

(B) A full point substitutes for a comma when referring to a decimal marker.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms “normative” and “informative” are used in Standards to define the application of the appendices or annexes to which they apply. A “normative” appendix or annex is an integral part of a Standard, whereas an “informative” appendix or annex is only for information and guidance.

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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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

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

This corrected version of ISO 25745-2:2015 incorporates the following corrections: minus signs have been replaced by plus signs in Formulae (9), (10) and (11); references in the Bibliography have been updated and corrected.

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*

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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.

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Energy performance of lifts, escalators and moving walks

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 1 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) lifts whose travel includes an express zone.

NOTE 2 An express zone is unlikely to affect the average car load but can significantly affect the average travel distance.

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*

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