SLOVENSKI STANDARD
SIST EN ISO 14798:2013

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Dvigala (lifti), tekoče stopnice in tekoče steze - Postopki za ocenjevanje in zmanjšanje tveganja (ISO 14798:2009)

Lifts (elevators), escalators and moving walks - Risk assessment and reduction methodology (ISO 14798:2009)

Aufzüge, Fahrtreppen und Fahrsteige - Verfahren zur Risikobeurteilung und Verringerung (ISO 14798:2009)

Ascenseurs, escaliers mécaniques et trottoirs roulants - Méthodologie de l'appréciation et de la réduction du risque (ISO 14798:2009)

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91.140.90 Dvigala. Tekoče stopnice Lifts. Escalators

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EUROPEAN STANDARD

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English Version

Lifts (elevators), escalators and moving walks - Risk assessment and reduction methodology (ISO 14798:2009)

Ascenseurs, escaliers mécaniques et trottoirs roulants - Méthodologie de l'appréciation et de la réduction du risque (ISO 14798:2009)

Aufzüge, Fahrtreppen und Fahrsteige - Verfahren zur Risikobeurteilung und -minderung (ISO 14798:2009)

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Foreword

The text of ISO 14798:2009 has been prepared by Technical Committee ISO/TC 178 “Lifts, escalators and moving walks” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 14798:2013 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of an identical text or by endorsement, at the latest by July 2013, and conflicting national standards shall be withdrawn at the latest by July 2013.

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Endorsement notice

The text of ISO 14798:2009 has been approved by CEN as a EN ISO 14798:2013 without any modification.

INTERNATIONAL STANDARD

ISO 14798

First edition
2009-03-01

Lifts (elevators), escalators and moving walks — Risk assessment and reduction methodology

Ascenseurs, escaliers mécaniques et trottoirs roulants — Méthodologie de l'appréciation et de la réduction du risque

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 14798 was prepared by Technical Committee ISO/TC 178, *Lifts, escalators and moving walks*.

This first edition of ISO 14798 cancels and replaces ISO/TS 14798:2006, which has been technically revised.

Introduction

The objective of this International Standard is to describe principles and set procedures for a consistent and systematic risk assessment methodology relevant to lifts (elevators), escalators, moving walks (“lifts”, for short). The risk analysis and assessment principles and process described in this International Standard may, however, be used for assessment of risk relevant to equipment other than lifts.

This risk assessment methodology is a tool used to identify risk of harm resulting from various hazards, hazardous situations and harmful events. Knowledge and experience of the design, use, installation, maintenance, incidents, accidents and related harm are brought together in order to assess the risk during all phases of the life of lifts[1)] (elevators), escalators and moving walks (hereafter referred to as “lifts”), from design and construction up to decommissioning. The users of the methodology do not make medical judgements but, rather, evaluate events that can possibly lead to levels of harm defined in this International Standard. By itself, this International Standard does not provide a presumption of conformity to any safety requirements for lifts, including those noted in Clause 1.

NOTE Risk assessment is not an exact science, as there is a certain degree of subjectivity in the process.

It is recommended that this International Standard be incorporated into training courses and manuals so as to provide basic instructions on safety aspects to those involved in

a) assessing designs, operations, testing and use of lift equipment, and

b) writing of specifications or standards incorporating safety requirements for lifts.

This International Standard describes a qualitative methodology for risk assessment that relies very much on the judgement and deliberations of the members of the risk assessment team who carry out the assessment. To ensure the most realistic and consistent assessment, it is essential that the methodology be followed faithfully. Aids such as numeric methods of assessment that follow the format described in this International Standard are not precluded from use. It should, however, be recognized that numeric aids to qualitative methods may still retain some of the subjectivity inherent in the qualitative process.

Clause 3 describes the concepts of safety and risk assessment. Clause 4 describes the procedure of risk analysis, including risk estimation. The procedure for risk evaluation is set out in Clause 5 and assessment in Clause 6. Clause 7 deals with protective measures. Clause 8 specifies relevant documentation.

1) Hereafter in this International Standard, the term “lift” is used instead of the term “elevator”. In addition, the term “lift” is also used instead of the terms “lifts, escalators and moving walks”.

Lifts (elevators), escalators and moving walks — Risk assessment and reduction methodology

1 Scope

This International Standard establishes general principles and specific procedures for assessing risk.

The purpose of this International Standard is to provide a process for making decisions relevant to the safety of lifts during the

a) design, construction, installation and servicing of lifts, lift components and systems,

b) development of generic procedures for the use, operation, testing, compliance verification and servicing of lifts, and

c) development of technical specifications and standards affecting the safety of lifts.

While examples in this International Standard refer primarily to risks of harm to persons, the risk assessment procedure set out in this International Standard can be equally effective for assessing other types of risk relevant to lifts, such as the risk of damage to property and environment.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1
cause
circumstance, condition, event or action that in a hazardous situation contributes to the production of an effect

2.2
effect
result of a cause in the presence of a hazardous situation

2.3
harm
physical injury or damage to the health of people, or damage to property or the environment

[ISO/IEC Guide 51:1999, 3.3]

2.4
harmful event
occurrence in which a hazardous situation results in harm

[ISO/IEC Guide 51:1999, 3.4]

NOTE In this International Standard, the term “harmful event” is interpreted as a combination of cause and effect.

2.5
hazard
potential source of harm

NOTE The term “hazard” can be qualified in order to define its origin or the nature of the expected harm (e.g. electric shock hazard, crushing hazard, cutting hazard, toxic hazard, fire hazard, drowning hazard).

[ISO/IEC Guide 51:1999, 3.5]

2.6
hazardous situation
circumstance in which people, property or the environment are exposed to one or more hazards

[ISO/IEC Guide 51:1999, 3.6]

2.7
life cycle
period of usage of a component or a lift system

2.8
protective measure
means used to reduce risk

NOTE Protective measures include risk reduction by inherently safe design, protective devices, personal protective equipment, information for use and installation and training

[ISO/IEC Guide 51:1999, 3.8]

2.9
residual risk
risk remaining after protective measures have been taken

[ISO/IEC Guide 51:1999, 3.9]

2.10
risk
combination of the probability of occurrence of harm and the severity of that harm

[ISO/IEC Guide 51:1999, 3.2]

2.11
risk analysis
systematic use of available information to identify hazards and to estimate the risk

[ISO/IEC Guide 51:1999, 3.10]

2.12
risk assessment
overall process comprising a risk analysis and a risk evaluation

[ISO/IEC Guide 51:1999, 3.12]

2.13
risk evaluation
consideration of the risk analysis results to determine if the risk reduction is required

2.14
scenario
sequence of a hazardous situation, cause and effect

2.15
severity
level of potential harm

3 General principles

3.1 Concept of safety

Safety, within this International Standard, is considered as freedom from unacceptable risk. There can be no absolute safety. Some risks, defined in this International Standard as residual risk, can remain. Therefore, a product or process (e.g. operation, use, inspection, testing, or servicing) can be only relatively safe. Safety is achieved by sufficient mitigation or reduction of the risk.

Safety is achieved by the search for an optimal balance between the ideal of absolute safety, the demand to be met by a product or process, and factors such as benefit to the user, suitability for purpose, cost effectiveness and conventions of the society concerned. Consequently, there is a need to review continually the established safety levels, in particular when experience necessitates review of the pre-set safety levels and when developments, both in technology and knowledge, can lead to feasible improvements to attain sufficient mitigation of the risk compatible with the use of a product, process, or service.

3.2 Concept of risk assessment

3.2.1 Safety is achieved by the iterative process of risk assessment (risk analysis and risk evaluation) and risk reduction (see Figure 1).

3.2.2 Risk assessment is a series of logical steps that enables, in a systematic way, the examination of hazards associated with lifts. Risk assessment is followed, whenever necessary, by the risk reduction process, as described in Clause 7. When this process is repeated, it gives the iterative process for eliminating hazards as far as possible and for implementing protective measures.

3.2.3 Risk assessment includes:

a) risk analysis

1) determination of the subject of analysis (see 4.3),

2) identification of scenarios: hazardous situations, causes and effects (see 4.4), and

3) risk estimation (see 4.5);

b) risk evaluation (see Clause 5).

3.2.4 Risk analysis provides the information required for the risk evaluation, which in turn allows judgements to be made on the level of safety of the lift and lift component, and any relevant process (e.g. operation, use, inspection, testing, or servicing).

3.2.5 Risk assessment relies on judgemental decisions. These decisions should be supported by qualitative methods complemented, as far as possible, by quantitative methods. Quantitative methods are particularly appropriate when the foreseeable severity and extent of harm are high. Qualitative methods are useful to assess alternative safety measures and to determine which one gives better protection.

NOTE The application of quantitative methods is restricted by the amount of useful data that is available, and in many applications, only a qualitative risk assessment is possible.

3.2.6 The risk assessment shall be conducted so that it is possible to note down the procedure that has been followed and the results that have been achieved (see Clause 8).