Technical Specification

ISO/TS 8100-22

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Lifts for the transport of persons and goods —

Part 22: Prerequisites for certification of lifts, model lifts, lift components and lift functions

Ascenseurs pour le transport de personnes et d'objets —

Partie 22: Prérequis pour la certification des ascenseurs, des ascenseurs modèles des composants et des fonctions des ascenseurs

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Foreword

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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 document 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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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

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

This first edition of ISO/TS 8100-22 cancels and replaces ISO/TS 22559-3:2011, which has been technically revised.

A list of all parts in the ISO 8100 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.

Introduction

0.1 The objective of the ISO 8100 series of performance-based documents is stated in the Introduction to ISO 8100-20 and ISO/TS 8100-21.

0.2 ISO 8100-20 has established global essential safety requirements (GESRs) for lifts (elevators) by addressing hazards and safety risks that may be encountered on a lift (elevator). The GESRs state safety objectives that a lift (elevator) should achieve.

0.3 ISO/TS 8100-21 sets criteria for achieving conformity with safety requirements of GESRs by specifying global safety parameters (GSPs) that should be used and implemented, where applicable, in a lift (elevator) to eliminate hazards or mitigate safety risks addressed in the GESRs.

0.4 This document sets prerequisite requirements that must be fulfilled before applying for certification in accordance with ISO/TS 8100-23.

0.5 ISO/TS 8100-23 sets procedures for certification of lifts, model lifts, lift components and lift functions, and supplements related requirements of ISO/IEC 17065 for certification bodies for lifts (LCBs).

0.6 The ISO 8100 series of performance-based documents provides a process for conformity assessment and certification of lifts, model lifts, lift components and lift functions with the safety requirements specified in ISO 8100-20. It includes a structured methodology for establishing, documenting and demonstrating that necessary and appropriate protective measures are taken to eliminate hazards or sufficiently mitigate risks. This process is particularly useful for establishing safety of lifts, model lifts, lift components and lift functions involving innovative design or new technologies. If one is using the process, ISO 8100-20, ISO 8100-21, ISO 8100-22, ISO 8100-23 of the ISO 8100 series should be used.

0.7 This document assumes that the applicant (see 3.1) uses a quality management system, e.g. ISO 9001. Assessment of conformity to the ISO 8100 series of performance-based documents does not imply conformity to the quality management system.

Lifts for the transport of persons and goods —

Part 22: Prerequisites for certification of lifts, model lifts, lift components and lift functions

1 Scope

This document specifies prerequisite requirements for application for the certification of new lifts (elevators), model lifts, lift components and lift functions.

NOTE Hereinafter in this document, the term "lift" is used instead of the term "elevator".

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.

ISO 8100-20:2018, *Lifts for the transport of persons and goods — Part 20: Global essential safety requirements (GESRs)*

ISO/TS 8100-21:2018, *Lifts for the transport of persons and goods — Part 21: Global safety parameters (GSPs) meeting the global essential safety requirements (GESRs)*

ISO 9000, *Quality management systems — Fundamentals and vocabulary*

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

ISO/IEC 17000:2020, *Conformity assessment — Vocabulary and general principles*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 9000, ISO/IEC 17000, ISO 8100-20, ISO/TS 8100-21 and the following apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
applicant
party that applies for certification of a lift, model lift, lift component or a lift function

Note 1 to entry: An applicant could be the manufacturer or the installer or their authorized representative.

3.2
authorized representative
any natural or legal person established within the country where the lift, model lift, lift component or lift function will be made available and who has received a written mandate from an installer or a manufacturer to act on his behalf in relation to specified tasks

3.3
certification
third-party attestation related to an object of conformity assessment, with the exception of accreditation

Note 1 to entry: The object of conformity assessment is a lift, model lift, lift component or a lift function.

[SOURCE: ISO/IEC 17000:2020, 7.6, modified — Note to entry was added]

3.4
designer
person or organization involved in the development of a specific design or function taking into account the relevant functional and safety aspects

3.5
certification body
third-party conformity assessment body operating certification schemes

Note 1 to entry: Where the term "certification body" is used in ISO/IEC 17065, it shall be understood to mean certification body for lifts (LCB) in this document (see ISO/TS 8100-23:2024, Clauses 5 and 6).

Note 2 to entry: The LCB performs conformity assessment and certification activities for lifts, model lifts, lift components and lift functions.

Note 3 to entry: A certification body, accredited in accordance with ISO/TS 8100-23 for this activity by a Multilateral Recognition Agreement (MLA) member of the International Accreditation Forum (IAF) would normally be assumed to meet the requirements of an LCB.

[SOURCE: ISO/IEC 17065:2012, 3.12, modified — Note to entry has been replaced.]

3.7
global essential safety requirement GESR
globally agreed upon essential safety requirement

[SOURCE: ISO 8100-20:2018, 3.9]

3.8
global safety parameter GSP
globally agreed upon safety parameter

[SOURCE: ISO/TS 8100-21:2018, 3.10]

3.9
installer
legal or natural person taking responsibility to erect and commission the lift at its final location

3.10
life cycle
period of usage of a lift, lift component or lift function

3.11
lift component
element or part contributing to the composition of the lift

3.12
lift function
mode of action by which a lift, model lift or lift component fulfils its purpose

3.13
manufacturer
organization that takes responsibility for the design and manufacture of the lift, model lift, lift component or lift function

3.14
model lift
defined range of lifts whose technical compliance documentation shows the way in which the GESRs will be met for (series-produced) lifts

Note 1 to entry: All permitted variations and configurations of the lift shall be clearly specified.

3.15
representative specimen lift
lift which has been provided by the applicant and having the necessary characteristics to allow the LCB to assess if the model lift with all its permitted variations and configurations meets the GESRs

3.16
supplier
person or organization who provides certified lifts, lift components or lift functions

3.17
technical compliance documentation
TCD
assembly of various data and documents prepared to document compliance with GESRs

4 Prerequisites for certification of lifts, model lifts, lift components and lift functions

4.1 Process

4.1.1 This process is based on a structured application of GESRs specified in ISO 8100-20.

4.1.2 This document requires applicants for certification to follow the procedures specified in 4.1.3 to 4.6.

4.1.3 The manufacturer or the installer or their authorized representative, as applicable, shall perform the following steps:

a) define the object of the safety assessment (see 4.2);

b) identify and implement applicable GESRs (see 4.3 and 4.4);

c) conduct the risk assessment (see 4.3.2);

d) eliminate or mitigate identified risks sufficiently by implementing protective measures, including GSPs, in accordance with ISO/TS 8100-21, where appropriate (see 4.4);

e) produce a TCD (see 4.6); and

f) submit the TCD along with the application (see ISO/TS 8100-23:2024, 7.2) to the LCB for certification (see ISO/TS 8100-23:2024, 7.3, 7.4, 7.5 and 7.6);

g) provide:

   1) the lift to be certified;

   2) the necessary number of representative specimen lifts in case of a model lift; or

   3) the necessary number of specimens in case of a lift component or a lift function.

For each lift, lift component or lift function covered by a certificate in accordance with ISO/TS 8100-23, the marking in accordance with Annex A should be provided.

4.2 Description of the object of safety assessment

4.2.1 The object of safety assessment shall be clearly identified, described and illustrated.

4.2.2 If the object of the assessment is a range of products, all variations within the range shall be specified.

NOTE A range of products might be a model lift, a lift component or a lift function with different parameters such as duty loads, operating speeds, and other variations.

4.2.3 It is only necessary to define the particular characteristics of the object that impact safety.

NOTE If the object of assessment relates, as an example to a lift car door model, other lift features such as the speed or rise of the lift, may not be relevant. In such case, the sole object of analysis and assessment will be the car door.

4.3 Implementing GESRs

4.3.1 When assessing the safety of a lift, model lift, lift component or lift function, the applicability of GESRs shall be determined by using one of the procedures described in ISO 8100-20:2018, 5.2.2.

4.3.2 To verify and demonstrate that a lift, model lift, lift component or lift function complies with an applicable GESR, risk assessment in accordance with ISO 14798 shall be carried out and the results documented.

NOTE 1 For documentation of risk assessment, see ISO 14798:2009, Annex A.

NOTE 2 See also 4.5.

4.3.3 To ensure that a lift, model lift, lift component or lift function is safe for use, protective measures and safety parameters shall be implemented or specified, if necessary, in the course of design, production and installation. Protective measures and safety parameters shall also be specified for inspection, testing, rescue operations, maintenance, and repair work unique to the design. Effectiveness of protective measures shall be preserved through the life cycle of the lift, lift component or lift function.

NOTE A particular design may necessitate special inspection, testing or maintenance procedures and/or special tools which need to be specified and available.

4.4 Pre-requisite for certification

A lift, model lift, lift component or lift function meets the pre-requisites for certification when:

a) all hazards have been identified;

b) all risk scenarios related to the object of assessment are identified and formulated;

c) risk assessment is conducted in accordance with ISO 14798; and

d) protective measures (see ISO 14798:2009, Clause 7) and appropriate GSPs (see ISO/TS 8100-21) are implemented, if applicable.

NOTE The above process is concluded when the requirements of applicable GESRs have been met, i.e. hazards identified have been eliminated or safety risks sufficiently mitigated.

4.5 Risk assessment criteria for certification

There shall be no risk equivalent in magnitude to those categorized in ISO 14798 as “Risk Group I”. In the case of a risk equivalent to those identified as “Risk Group II” in ISO 14798, a review shall be carried out to

determine if any further protective measures are required. In the case of a risk of the level equivalent to those identified as “Risk Group III”, no further action is required.

NOTE For risk groups, see ISO 14798:2009, Clause 5 and Table D.2.

4.6 Technical compliance documentation (TCD)

4.6.1 As stated in 4.1.3 e) and f), TCD shall be produced for each design of a lift, model lift, lift component or lift function.

The TCD shall:

a) provide sufficient information on the design, operation and intended use of the product covered, to facilitate verification of its conformity to the requirements of applicable GESRs.

In case of a range of products within a model lift, a lift component or a lift function, this needs to be supplemented by:

1) a clear specification of all permitted variations;

2) a demonstration of the similarity of a range of products in order to satisfy the GESRs. This demonstration shall be permitted by description, calculation or on the basis of drawings or a combination.

In the case of a lift, installed on the basis of a model lift, the TCD of the installed lift shall demonstrate that the specifications are within the permitted range of the model lift.

b) enable a LCB to assess the conformity of the product for the purpose of certification.

4.6.2 The TCD shall include:

a) name and address of:

1) the applicant (see 3.1); and

2) the name(s) of the manufacturer(s) and place(s) of manufacture;

b) overall description of the product covered by the TCD, including drawings, specifications and installation and operational instructions;

c) design and manufacturing drawings or diagrams, if necessary;

NOTE 1 Drawings deal with constructional features; diagrams deal with operational features.

d) results of all applicable tests and/or calculations performed;

e) steps taken at the manufacturing stage to ensure that series-produced lifts, lift components or lift functions conform to the certified model lift, lift component or lift function;

NOTE 2 Reference to a manufacturer’s quality management system may satisfy this requirement (see 0.7)

f) information to enable identification of the lift, lift component or lift function, to which the ISO 8100 series of performance-based documents is applied, once installed in the field (see Annex A);

g) list of GESRs considered and applied;

h) risk assessment report, including risk assessment of each compiled risk scenario formulated on template shown in ISO 14798:2009, Annex A;

i) technical documentation necessary to demonstrate conformity with each applicable GESR and to enable verification of conformity with ISO 8100-20;

j) procedures for installation or implementation (in case of a lift function), including sequences of installation of the lift, the series-produced lift on the basis of a model lift, the lift component or the implementation of the lift function, if critical for safety;

k) procedure(s) for acceptance inspection and tests to verify conformity with the TCD;

NOTE 3 Other commonly used terms for acceptance inspection include commissioning tests, handover inspection or final inspection.

l) specific safety-related procedures for periodic inspections and tests, maintenance, replacements, adjustments and repairs, including identification of activities required to preserve or achieve required risk levels (see 4.5);

m) a copy of related certificates for model lifts, lift components or lift functions (where applicable); and

n) for lift components and lift functions:

1) the intended use of the lift component or lift function (possible limitations such as speed, load, power, etc.) and conditions affecting use (such as explosive environments, exposure to the elements, etc.); and

2) a copy of the assembly instructions for the lift component or lift function, if necessary.