TECHNICAL SPECIFICATION

ISO/TS 22559-3

First edition
2011-09-15

Safety requirements for lifts (elevators) —

Part 3: Global conformity assessment procedures (GCAP) — Prerequisites for certification of conformity of lift systems, lift components and lift functions

Exigences de sécurité des ascenseurs —

Partie 3: Procédures d'évaluation globale de conformité — Prérequis pour la certification de la conformité des systèmes, des composants et des fonctions des ascenseurs

Reference number
ISO/TS 22559-3:2011(E)

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Published in Switzerland

Contents

Page

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.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of document:

— an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;

— an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

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/TS 22559-3 was prepared by Technical Committee ISO/TC 178, *Lifts, escalators and moving walks*.

ISO/TS 22559 consists of the following parts, under the general title *Safety requirements for lifts (elevators)*:

— *Part 1: Global essential safety requirements (GESRs)*

— *Part 2: Safety parameters meeting the global essential safety requirements (GESRs)*

— *Part 3: Global conformity assessment procedures (GCAP) — Prerequisites for certification of conformity of lift systems, lift components and lift functions*

— *Part 4: Global conformity assessment procedures (GCAP) — Certification and accreditation requirements*

Introduction

0.1 The objective of the ISO/TS 22559 series of documents is stated in the Introduction to ISO/TS 22559-1 and ISO/TS 22559-2.

0.2 ISO/TS 22559-1 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 22559-2 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 part of ISO/TS 22559 sets prerequisite requirements that must be fulfilled before applying for a global conformity assessment procedure (GCAP) certificate of conformity in accordance with ISO/TS 22559-4.

0.5 ISO/TS 22559-4 sets procedures for certification of conformity of lift systems, lift components and lift functions and for accreditation of conformity assessment bodies (GCABs).

0.6 The ISO/TS 22559 series of documents provides a process for assessment of conformity of lift systems, lift components or lift functions with the safety requirements specified in ISO/TS 22559-1. 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 lift systems, lift components or lift functions involving innovative design or new technologies. If one is using the process, Parts 1 to 4 of the ISO/TS 22559 series should be used.

0.7 This part of ISO/TS 22559 envisages that a quality management system is used, e.g. ISO 9001 for applicants (see 3.1) and ISO 17021 for GCABs (see 3.4). Assessment of conformity to the ISO/TS 22559 series of documents does not imply conformity to ISO 9001.

Safety requirements for lifts (elevators) —

Part 3:
Global conformity assessment procedures (GCAP) — Prerequisites for certification of conformity of lift systems, lift components and lift functions

1 Scope

This part of ISO/TS 22559 specifies prerequisite requirements for application for a global conformity assessment procedure (GCAP) certificate of conformity for new lift (elevator) systems, lift components or lift functions.

NOTE Hereinafter in this part of ISO/TS 22559, the term “lift” is used instead of the term “elevator”. The term “lift system” is also used to describe a “lift”.

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.

ISO/IEC Guide 65:1996, *General requirements for bodies operating product certification systems*

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, *Conformity assessment — Vocabulary and general principles*

ISO/TS 22559-1:2004, *Safety requirements for lifts (elevators) — Part 1: Global essential safety requirements (GESRs)*

ISO/TS 22559-2:2010, *Safety requirements for lifts (elevators) — Part 2: Safety parameters meeting the global essential safety requirements (GESRs)*

ISO/TS 22559-4:2011, *Safety requirements for lifts (elevators) — Part 4: Global conformity assessment procedures (GCAP) – Certification and accreditation requirements*

NOTE Some of the references in ISO/IEC Guide 65 are superseded by the above references or documents listed in the Bibliography.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 9000, ISO/IEC 17000, ISO/TS 22559-1, ISO/TS 22559-2 and the following apply.

3.1
applicant
party that applies for a GCAP certificate of conformity

NOTE An applicant could be the designer, manufacturer or its authorized representative, installer or supplier.

3.2
certification
procedure whereby a GCAB certifies that specified requirements are met

3.3
GCAP certificate of conformity
statement from a GCAB, based on a decision following assessment, that conformity with specified requirements relating to a model lift, lift system, lift component or lift function has been demonstrated

3.4
global conformity assessment body
GCAB
product certification body, competent to perform product safety evaluation, which awards certificates of conformity stating that the product (lift, component or lift function) meets the requirements of ISO/TS 22559-1

NOTE 1 A certification body, duly accredited in accordance with ISO/TS 22559-4 for this activity by a Multilateral Recognition Agreement (MLA) member of the International Accreditation Forum (IAF) would normally be deemed to meet the requirements of a GCAB.

NOTE 2 Where the term “certification body” is used in ISO/IEC Guide 65, it shall be understood to mean GCAB (see ISO/TS 22559-4:2011, Clauses 5 and 6).

3.5
global essential safety requirement
GESR
globally agreed upon essential safety requirement, as published in ISO/TS 22559-1

3.6
global safety parameter
GSP
globally agreed upon safety parameter, as published in ISO/TS 22559-2

3.7
installer
organization (e.g. manufacturer, its authorized representative) that erects certified lift systems or lift components or lift functions

3.8
life cycle
period of usage of a lift component, lift function or lift system

3.9
lift component
element or part contributing to the composition of the whole lift

3.10
lift function
mode of action by which a lift system or lift component fulfils its purpose

3.11
manufacturer
organization that takes responsibility for the design and manufacture of the lift or lift component

3.12
model lift
representative lift whose technical compliance documentation shows the way in which the GESRs will be met for series-produced lifts having a defined range of application and operation

3.13
supplier
organization (e.g. manufacturer or its authorized representative, or installer) who provides certified lift systems, or supplies lift components or lift functions for use in a lift system

3.14
technical compliance documentation
TCD
assembly of various data and documents prepared to document compliance with GESRs

4 Prerequisites for certification of 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/TS 22559-1.

4.1.2 This part of ISO/TS 22559 requires applicants for certification to demonstrate conformity with the requirements of the GESRs by following the procedures specified in 4.1.3 to 4.7.

4.1.3 The manufacturer or its authorized representative, the installer or supplier, as applicable, shall be responsible for achieving and demonstrating compliance by performing the following steps:

a) define the subject 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 4.3.3);

d) eliminate or mitigate identified risks sufficiently by implementing protective measures, including GSPs, in accordance with ISO/TS 22559-2, where appropriate (see 4.4);

e) produce a TCD (see 4.6); and

f) submit the TCD along with the application (see ISO/TS 22559-4:2011, 4.3) to the GCAB for conformity assessment and certification (see ISO/TS 22559-4).

4.2 Description of the subject of safety assessment

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

EXAMPLE The lift system to be assessed may be a model lift without a machine room.

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

EXAMPLE A range of products with different duty loads, operating speeds, rise and other variations.

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

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

4.3 Implementing GESRs

4.3.1 When assessing the safety of a lift system, lift component or lift function, the applicability of GESRs shall be determined by using one of the procedures described in ISO/TS 22559-1:2004, 5.2.2.

4.3.2 To verify and demonstrate that a lift system or 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 For documentation of risk assessment, see ISO 14798:2009, Annex A.

4.3.3 To ensure that a lift 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 and lift function.

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

4.4 Achieving conformity

A lift system, lift component or lift function achieves conformity with the applicable GESRs when:

a) all hazards have been identified;

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

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

d) protective measures and appropriate GSPs (see ISO/TS 22559-2) 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 Criteria for conformity

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 model lift, lift system, lift component or lift function.

The TCD shall:

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

b) enable a GCAB to assess the conformity of the equipment for the purpose of certification of conformity.

4.6.2 In the case of a model lift:

a) all permitted variations between the model lift and the installed lift shall be clearly specified in the TCD (with minimum and maximum values, features, etc.);

b) the TCD of the installed lift shall specify the permitted variations and demonstrate that the variations are within the permitted range of the model lift; and

c) demonstration of the similarity of a range of equipment in order to satisfy the GESRs shall be permitted by calculation or on the basis of drawings, or both.

4.6.3 The TCD shall include:

a) name and address of:

   1) the applicant (see 3.1); and

   2) if the applicant for certification is other than the manufacturer, the name of the manufacturer and place(s) of manufacture;

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

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

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

d) results of all applicable tests or calculations performed;

e) 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.);

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

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

NOTE Reference to a manufacturer's quality management system may satisfy this requirement.

g) information to enable identification of the lift system, lift component or lift function, to which the ISO 22559 series of documents is applied, once installed in the field (see 4.7);

h) list of GESRs considered and applied;

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

j) technical documentation necessary to demonstrate conformity with each applicable GESR and to enable verification of conformity with ISO/TS 22559-1;

k) procedures for installation, including sequences of installation of the lift, lift components or lift functions, if the sequence is critical for safety;

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

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

m) 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);

n) copy of related GCAP certificates of conformity for lift components (where applicable).