

Safety requirements for lifts (elevators) —

Part 1: Global safety requirements (GESR's) for lifts (elevators)

ICS 91.140.90

National foreword

This Draft for Development reproduces verbatim ISO/TS 22559-1:2004.

This publication is not to be regarded as a British Standard.

It is being issued in the Draft for Development series of publications and is of a provisional nature because the topic is evolving rapidly. It should be applied on this provisional basis, so that information and experience of its practical application may be obtained.

Comments arising from the use of this Draft for Development are requested so that UK experience can be reported to the international organization responsible for the Technical Specification. A review of this publication will be initiated not later than 3 years after its publication by the international organization so that a decision can be taken on its status at the end of its 3-year life. Notification of the start of the review period will be made in an announcement in the appropriate issue of *Update Standards*.

According to the replies received by the end of the review period, the responsible BSI Committee will decide whether to support the conversion into an international standard, to extend the life of the Technical Specification for another 3 years or to withdraw it. Comments should be sent in writing to the Secretary of BSI Technical Committee MHE/4, Lifts, hoists and escalators, at 389 Chiswick High Road, London W4 4AL, giving the document reference and clause number and proposing, where possible, an appropriate revision of the text.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

Summary of pages

This document comprises a front cover, an inside front cover, the ISO/TS title page, pages ii to v, a blank page, pages 1 to 26, an inside back cover and a back cover.

The BSI copyright notice displayed in this document indicates when the document was last issued.

This Draft for Development was published under the authority of the Standards Policy and Strategy Committee on 30 April 2004

Amendments issued since publication

Amd. No.	Date	Comments

© BSI 30 April 2004

ISBN 0 580 43712 4

TECHNICAL SPECIFICATION

ISO/TS 22559-1

First edition
2004-02-01

Safety requirements for lifts (elevators) —

Part 1: Global essential safety requirements (GESRs)

Exigences de sécurité des ascenseurs —

Partie 1: Exigences essentielles de sécurité globale des ascenseurs



Contents

Page

Foreword	iv
0 Introduction	v
1 Scope	1
2 Normative references	2
3 Terms, definitions and abbreviated terms	2
4 Approach and methodology	6
4.1 Background	6
4.2 Approach	6
4.3 Methodology	7
5 Understanding and implementing GESRs	7
5.1 Overall objective	7
5.2 Use of GESRs	9
5.3 Use of this part of ISO/TS 22559	11
6 Global essential safety requirements (GESRs)	13
6.1 Common GESRs related to persons at different locations	13
6.2 GESRs related to persons adjacent to the lift	15
6.3 GESRs related to persons at the entrances	15
6.4 GESRs related to persons in the LCU	16
6.5 GESRs related to persons in working areas	19
Annex A (informative) Overview of GESRs in relation to lift subsystems	21
Bibliography	26

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 normative 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 22559-1 was prepared by Technical Committee ISO/TC 178, *Lifts, escalators, passenger conveyors*.

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

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

Further parts are under preparation:

- *Part 2: Safety parameters meeting the GESRs*
- *Part 3: Global conformity assessment procedures for lifts*

0 Introduction

0.1 After the publication of parts 1 and 2 of ISO/TR 11071, discrepancies were noted in the lift safety standards, and it was agreed that there was a need for an ISO publication that would set global essential safety requirements for lifts (elevators). The work, however, could start only after ISO/TS 14798 was completed. This methodology was a critical tool in the development of ISO/TS 22559 on safety requirements for lifts.

0.2 The objective of this series of Technical Specifications is

- a) to define a common global level of safety for all people using, or associated with, lifts (elevators);
- b) to facilitate innovation of lifts (elevators) not designed according to existing local, national or regional safety standards, while maintaining equal levels of safety; if such innovations become state of the art, they can then be integrated into the detailed local safety standard, at a later date; and
- c) to remove trade barriers.

NOTE ISO/TS 22559-2 will contain global essential safety parameters (GESPs) for lifts (elevators) that should further assist in the use and implementation of the GESRs specified in this part of ISO/TS 22559.

0.3 Clause 4 describes the approach and methodology used in the development of this part of ISO/TS 22559. Clause 5 gives instructions for the use and implementation of GESRs. The GESRs are presented in Clause 6. Each GESR specifies a safety objective, i.e. what is to be achieved, not how to do it. This allows innovation and development of future technologies. Annex A gives an overview of GESRs in relation to lift subsystems.

0.4 This part of ISO/TS 22559 is a basic safety standard in terms of ISO/IEC Guide 51.

Safety requirements for lifts (elevators) —

Part 1: Global essential safety requirements (GESRs)

1 Scope

1.1 This part of ISO/TS 22559

- specifies global essential safety requirements (GESRs) for lifts (elevators), their components and functions, and
- establishes a system and provides methods for minimizing safety risks that may arise in the course of, the operation and use of, or work on, lifts (elevators).

NOTE 1 Hereinafter in this part of ISO/TS 22559, the term “lift” is used instead of the US term “elevator”.

NOTE 2 See Clause 5 regarding the use and application of this Technical Specification.

1.2 This part of ISO/TS 22559 is applicable to lifts that are intended to carry persons, and that can

- a) be located in any permanent and fixed structure or building, except lifts located in
 - 1) private residences (single family units), and
 - 2) means of transport, e.g. ships;
- b) have any
 - 1) rated load, size of load carrying unit and speed, and
 - 2) travel distance and number of landings;
- c) be affected by fire in the load-carrying unit (LCU), earthquake, weather or flood;
- d) be misused (e.g. overloaded) but not vandalized.

1.3 This part of ISO/TS 22559 does not specifically cover

- a) all needs of users with disabilities¹⁾, or
- b) risks arising from
 - 1) work on lifts under construction or during alterations and dismantling,
 - 2) use of lifts for fire fighting and emergency evacuation,

¹⁾ Although the GESRs specified in this part of ISO/TS 22559 have been identified and evaluated by risk assessment, not all disabilities or combinations of such disabilities of users have necessarily been addressed.

- 3) vandalism, and
- 4) fire outside the LCU.

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 51:1999, *Safety aspects — Guidelines for their inclusion in standards*

ISO/TS 14798:2000, *Lifts (elevators), escalators and passenger conveyors — Risk analysis methodology*

3 Terms, definitions and abbreviated terms

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

3.1
authorized person
person with authorization to access restricted lift areas [e.g. machinery spaces, lift well (hoistway), pit and LCU top] and to work therein, for the purpose of inspecting, testing and maintaining the lift or for rescuing users from a stalled load-carrying unit (LCU)

3.2
cause
trigger mechanism to the hazard, which will cause the incident or effect

[ISO/TS 14798:2000, definition 3.1]

3.3
control
system that governs the starting, acceleration, speed, deceleration and/or stopping of the LCU

3.4
corrective action
action taken to reduce risk

3.5
counterweight
mass that contributes traction in the case of a traction lift, or mass that saves energy by balancing all or part of the mass of the LCU (car) and the rated load

3.6
door
access
entrance
(landing or LCU) mechanical device (including devices that partially or fully enclose the opening) used to secure an LCU or landing entrance

3.7
electromagnetic compatibility
EMC
degree of immunity to incident electromagnetic radiation and level of emitted electromagnetic radiation of electrical apparatus

3.8**essential safety requirement****ESR**

requirement intended to eliminate or sufficiently mitigate the risk of harm to users, non-users and authorized persons using, or associated with, lifts

3.9**fully loaded LCU**

LCU (car) with its rated load

3.10**global essential safety requirement****GESR**

globally agreed upon essential safety requirement

NOTE See 4.3.3.

3.11**harm**

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

[ISO/TS 14798:2000, definition 3.3] [ISO/IEC Guide 51:1999, definition 3.3]

3.12**harmful event**

occurrence in which a hazardous situation results in harm

[ISO/TS 14798:2000, definition 3.5] [ISO/IEC Guide 51:1999, definition 3.4]

3.13**hazard**

potential source of harm

[ISO/TS 14798:2000, definition 3.4] [ISO/IEC Guide 51:1999, definition 3.5]

3.14**hazardous situation**

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

[ISO/TS 14798:2000, definition 3.6] [ISO/IEC Guide 51:1999, definition 3.6]

3.15**hoistway****well**

travel path(s) of the LCU and related equipment plus the spaces below the lowest landing and above the highest landing

3.16**hoistway enclosure****well enclosure**

fixed structural elements that isolate the well (hoistway) from all other areas or spaces

3.17**incident****effect**

unforeseen event or occurrence, which can, but does not necessarily, create a risk of harm, including risks possible due to shearing, crushing, falling, impact, trapping, fire, electric shock, exposure to weather, etc.