
**Lifts for the transport of persons and
goods —**

**Part 34:
Measurement of lift ride quality**

Ascenseurs pour le transport des personnes et des charges —

Partie 34: Mesure de la qualité de déplacement des ascenseurs



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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 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 8100-34 cancels and replaces ISO 18738-1:2012, of which it constitutes a minor revision.

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

The objective of this document is to encourage industry-wide uniformity in the definition, measurement, processing and expression of vibration and noise signals that comprise lift ride quality.

The aim of such uniformity is to benefit lift industry clients by reducing variability in the results of lift ride quality measurements caused by differences in the methods of acquiring and quantifying the signals.

This document is intended to be referred to by those parties interested in

- a) developing manufacturing specifications and calibration methods for instrumentation,
- b) defining the scope of the specifications for lift ride quality in contracts, and
- c) measuring lift ride quality in accordance with an International Standard.

It is intended to produce lift ride quality measurements which

- a) are simple to understand without specialized knowledge of noise and vibration analysis,
- b) correlate well with human response to ensure plausibility, and
- c) are accountable via calibration procedures which are traceable to national standards.

This document refers to ISO 8041 and IEC 61672 and has drawn significantly on the considerable body of research implicit in these International Standards. However, several special challenges drawing on additional research and development were also recognized.

Experience in the lift industry indicates that evaluation of vibration in terms of peak-to-peak levels is of particular relevance to passenger comfort. It was considered necessary for this document to provide a dual form of expression, quantifying both the maximum peak-to-peak and A95 peak-to-peak vibration levels.

To minimize the adverse effects of external influences unique to the lift industry, it was considered necessary to prescribe the prerequisites and method of the measurement process as well as the relevant boundaries (start and end points) over which each signal is quantified.

It was also considered necessary to analyse vertical vibration and vertical motion control separately in order to correlate with human response.

Finally, through the inclusion of algorithms amenable to digital programming, this document reflects the commercial need in the lift industry for instrumentation capable of rapid automatic computation of the required signal quantities. Analog systems may be used provided that the requirements of this document are met.

Lifts for the transport of persons and goods —

Part 34: Measurement of lift ride quality

1 Scope

This document specifies requirements and methodology for the measurement and reporting of lift ride quality during lift motion. It does not specify acceptable or unacceptable ride quality.

Lift performance parameters are often referenced in conjunction with lift ride quality. Parameters relevant to lift performance include jerk and acceleration. This document defines and uses performance parameters where they are integral to the evaluation of ride quality.

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/IEC Guide 98, *Guide to the expression of uncertainty in measurement (GUM)*

ISO 2041, *Mechanical vibration, shock and condition monitoring — Vocabulary*

ISO 5805, *Mechanical vibration and shock — Human exposure — Vocabulary*

ISO 8041, *Human response to vibration — Measuring instrumentation*

IEC 61672-1:2013, *Electroacoustics — Sound level meters — Part 1: Specifications*

IEC 61672-2:2017, *Electroacoustics — Sound level meters — Part 2: Pattern Evaluation Tests*

ISO 80000-8:2020, *Quantities and units — Part 8: Acoustics*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 2041, ISO 5805, IEC 61672, and ISO 80000-8 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 <http://www.electropedia.org/>

3.1

acceleration

rate of change of z-axis velocity, attributed to lift motion control

Note 1 to entry: It is expressed in metres per second squared (m/s^2).