# SLOVENSKI STANDARD
# oSIST prEN ISO 717-2:2020

**01-marec-2020**

---

**Akustika - Vrednotenje zvočne izolirnosti v stavbah in zvočne izolirnosti gradbenih elementov - 2. del: Izolirnost pred udarnim zvokom (ISO/DIS 717-2:2019)**

Acoustics - Rating of sound insulation in buildings and of building elements - Part 2: Impact sound insulation (ISO/DIS 717-2:2019)

Akustik - Bewertung der Schalldämmung in Gebäuden und von Bauteilen - Teil 2: Trittschalldämmung (ISO/DIS 717-2:2019)

Acoustique - Évaluation de l'isolement acoustique des immeubles et des éléments de construction - Partie 2: Protection contre le bruit de choc (ISO/DIS 717-2:2019)



**Ta slovenski standard je istoveten z:** **prEN ISO 717-2**

---

**ICS:**

| | | |
|---|---|---|
| 91.120.20 | Akustika v stavbah. Zvočna izolacija | Acoustics in building. Sound insulation |

**oSIST prEN ISO 717-2:2020** **en,fr,de**

DRAFT INTERNATIONAL STANDARD
**ISO/DIS 717-2**

ISO/TC **43**/SC **2** Secretariat: **DIN**

Voting begins on:
**2019-12-30**

Voting terminates on:
**2020-03-23**

# Acoustics — Rating of sound insulation in buildings and of building elements —

## Part 2:
## Impact sound insulation

*Acoustique — Évaluation de l'isolement acoustique des immeubles et des éléments de construction — Partie 2: Protection contre le bruit de choc*

ICS: 91.120.20





This document is circulated as received from the committee secretariat.

**ISO/CEN PARALLEL PROCESSING**

Reference number
ISO/DIS 717-2:2019(E)

**COPYRIGHT PROTECTED DOCUMENT**



ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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.

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 *43*, *Acoustics*, Subcommittee SC 2, *Building acoustics*.



This fourth edition cancels and replaces the third edition (ISO 717-2:2013), which has been technically revised.

The purpose of this revised version is to:

The main changes compared to the previous edition are as follows:

— Introduction of a method for rating heavy/soft impact sound insulation performance of building and building materials by A-weighted maximum impact sound pressure level.

A list of all parts in the ISO 717 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

Methods of measurement of impact sound insulation in buildings and of building elements have been standardized in ISO 10140-3 and ISO 16283-2. These methods give values for the impact sound insulation which are frequency dependent. The purpose of this part of ISO 717 is to standardize a method whereby the frequency-dependent values of impact sound insulation can be converted into a single number characterizing the acoustical performance.

The method has been widely used since 1968. However, since there is some evidence that it could be improved, a spectrum adaptation term is added and it is recommended that experience be gathered with this.

References to standards which provide data for single-number evaluation are meant to be examples and not complete surveys.

# Acoustics — Rating of sound insulation in buildings and of building elements —

# Part 2: Impact sound insulation

## 1 Scope

This part of ISO 717:

a) defines single-number quantities for impact sound insulation in buildings and of floors;

b) gives rules for determining these quantities from the results of measurements carried out in one-third-octave bands in accordance with ISO 10140-3 and ISO 16283-2, and in octave bands in accordance with that option in ISO 16283-2 for field measurements only;

c) defines single-number quantities for the impact sound reduction of floor coverings and floating floors calculated from the results of measurements carried out in accordance with ISO 10140-3;

d) specifies a procedure for evaluating the weighted reduction in impact sound pressure level by floor coverings on lightweight floors.



The single-number quantities in accordance with this part of ISO 717 are intended for rating impact sound insulation and for simplifying the formulation of acoustical requirements in building codes. An additional single-number evaluation in steps of 0,1 dB is indicated for the expression of uncertainty (except for spectrum adaptation terms).The required numerical values of the single-number quantities are specified according to varying needs.



The rating of results from measurements carried out over an enlarged frequency range is described in Annex A.

A method for obtaining single-number quantities for bare heavy floors according to their performance in combination with floor coverings is described in Annex B.

Examples of the calculation of a single-number quantity is given in Annex C.

A method for rating heavy/soft impact sound insulation performance of building and building materials by A-weighted maximum impact sound pressure level is given in Annex D.

## 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 16283-2:2018, *Acoustics — Field measurement of sound insulation in buildings and of building elements — Part 2: Impact sound insulation*

ISO 10140-1, *Acoustics — Laboratory measurement of sound insulation of building elements — Part 1: Application rules for specific products*

ISO 10140-3:2010, *Acoustics — Laboratory measurement of sound insulation of building elements — Part 3: Measurement of impact sound insulation*

ISO 10140-5, *Acoustics — Laboratory measurement of sound insulation of building elements — Part 5: Requirements for test facilities and equipment*

ISO 12999-1, *Acoustics — Determination and application of measurement uncertainties in building acoustics — Part 1: Sound insulation*

## 3 Terms and definitions

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

ISO and IEC maintain terminological 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**
**single-number quantity for impact sound insulation rating derived from one-third-octave band measurements**
value of the relevant reference curve at 500 Hz after shifting it in accordance with the method specified in this part of ISO 717

Note 1 to entry: This quantity is expressed in decibels.

**3.2**
**single-number quantity for impact sound insulation rating derived from octave band measurements**
value of the relevant reference curve at 500 Hz after shifting it in accordance with the method specified in this part of ISO 717, reduced by 5 dB

Note 1 to entry: Terms and symbols for the single-number quantity used depend on the type of measurement. Examples are listed in Table 1 for impact sound insulation properties of building elements and in Table 2 for impact sound insulation between rooms in buildings.

Note 2 to entry: In order to distinguish clearly between values with and without flanking transmission, primed symbols (e.g. $L'_n$) are used to denote values obtained with flanking transmission.

Note 3 to entry: This quantity is expressed in decibels.

**3.3**
**weighted reduction in impact sound pressure level**
difference between the weighted normalized impact sound pressure levels derived with a bare heavy reference floor or with a lightweight reference floor without and with a floor covering, obtained in accordance with the method specified in this part of ISO 717.

Note 1 to entry: The quantity derived with a lightweight heavy reference floor is denoted by $\Delta L_w$ and is expressed in decibels.

Note 2 to entry: The quantity derived with a bare heavy reference floor is denoted by $\Delta L_{t,w}$ and is expressed in decibels. According to the type of reference floor it may be denoted by $\Delta L_{t1,w}$, $\Delta L_{t2,w}$, $\Delta L_{t3,w}$.

**3.4**
**spectrum adaptation term**
$C_I$
value, in decibels, to be added to the single-number quantity to take account of the unweighted impact sound level, thereby representing the characteristics of typical walking noise spectra

**3.5**
**equivalent weighted normalized impact sound pressure level of a bare heavy floor**
sum of the weighted normalized impact sound pressure level of the bare floor under test with the reference floor covering and the weighted reduction in impact sound pressure level of the reference floor covering obtained in accordance with the method specified in this part of ISO 717

Note 1 to entry: This quantity is denoted by $L_{\mathrm{n,eq,0,w}}$ and is expressed in decibels.

**Table 1 — Quantities of impact sound insulation properties of floors**

| Derived from one-third-octave band values | | Defined in | |
|---|---|---|---|
| **Single-number quantity** | **Term and symbol** | | |
| Weighted normalized impact sound pressure level, $L_{\mathrm{n,w}}$ | Normalized impact sound pressure level, $L_{\mathrm{n}}$ | ISO 10140-3:2010 | Formula (1) |

**Table 2 — Quantities of impact sound insulation between rooms in buildings**

| Derived from one-third-octave band values or octave-band values | | Defined in | |
|---|---|---|---|
| **Single-number quantity** | **Term and symbol** | | |
| Weighted normalized impact sound pressure level, $L'_{\mathrm{n,w}}$ | Normalized impact sound pressure level, $L'_{\mathrm{n}}$ | ISO 16283-2:2018 | Formula (2) |
| Weighted standardized impact sound pressure level, $L'_{nT,\mathrm{w}}$ | Standardized impact sound pressure level, $L'_{nT}$ | ISO 16283-2:2018 | Formula (1) |



## 4 Procedure for evaluating single-number quantities for impact sound insulation rating



### 4.1 General

The values obtained in accordance with ISO 10140-3 and ISO 16283-2 are compared with reference values (see 4.2) at the frequencies of measurement within the range 100 Hz to 3 150 Hz for measurements in one-third-octave bands or 125 Hz to 2 000 Hz for measurements in octave bands.

The comparison shall be carried out in accordance with 4.3.

### 4.2 Reference values

The set of reference values used for comparison with measurement results shall be as given in Table 3. The reference curves are shown in Figures 1 and 2.

NOTE The reference values for the octave bands 125 Hz to 1 000 Hz are equivalent to the energetic sum (rounded to integers) of these for the relevant one-third-octave band values. The reference value for the octave band 2 000 Hz has been reduced to take care of the one-third-octave band 3 150 Hz, which (for bare heavy floors) may contribute considerably to the unfavourable deviations.