SLOVENSKI STANDARD
SIST EN ISO 717-2:1997

01-april-1997

Akustika - Vrednotenje zvočne izolirnosti v zgradbah in zvočne izolirnosti gradbenih elementov - 2. del: Izolirnost pred udarnim zvokom (ISO 717-2:1996)

Acoustics - Rating of sound insulation in buildings and of building elements - Part 2: Impact sound insulation (ISO 717-2:1996)

Akustik - Bewertung der Schalldämmung in Gebäuden und von Bauteilen - Teil 2: Trittschalldämmung (ISO 717-2:1996)

Acoustique - Evaluation de l'isolement acoustique des immeubles et des éléments de construction -Partie 2: Protection contre le bruit de choc (ISO 717-2:1996)

Ta slovenski standard je istoveten z: **EN ISO 717-2:1996**

ICS:

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

SIST EN ISO 717-2:1997 **en**

EUROPEAN STANDARD

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EUROPÄISCHE NORM

EN ISO 717-2

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English version

Acoustics - Rating of sound insulation in buildings and of building elements - Part 2: Impact sound insulation (ISO 717-2:1996)

Acoustique - Evaluation de l'isolement acoustique des immeubles et des éléments de construction - Partie 2: Protection contre le bruit de choc (ISO 717-2:1996)

Akustik - Bewertung der Schalldämmung in Gebäuden und von Bauteilen - Teil 2: Trittschalldämmung (ISO 717-2:1996)

This European Standard was approved by CEN on 1996-11-30. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart,36 B-1050 Brussels

Foreword

The text of the International Standard ISO 717-2:1996 has been prepared by Technical Committee ISO/TC 43 "Acoustics" in collaboration with Technical Committee CEN/TC 126 "Acoustics properties of building products and of buildings", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 1997, and conflicting national standards shall be withdrawn at the latest by June 1997.

ISO 717 consists of two parts under the general title

Acoustics - Rating of sound insulation in buildings and of building elements

Part 1: Airborne sound insulation
Part 2: Impact sound insulation

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 717-2:1996 was approved by CEN as a European Standard without any modification.

INTERNATIONAL STANDARD

ISO 717-2

Second edition
1996-12-15

Acoustics — Rating of sound insulation in buildings and of buildings 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

Reference number
ISO 717-2:1996(E)

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.

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.

International Standard ISO 717-2 was prepared by Technical Committee ISO/TC 43, *Acoustics*, Subcommittee SC 2, *Building acoustics*.

This second edition of ISO 717-2 cancels and replaces the first edition (ISO 717-2:1982), which has been technically revised.

ISO 717 consists of the following parts, under the general title:

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

— *Part 1: Airborne sound insulation*

— *Part 2: Impact sound insulation*

Annexes A, B, C and D of this part of ISO 717 are for information only.

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Introduction

Methods of measurement of impact sound insulation in buildings and of building elements have been standardized in ISO 140-6, ISO 140-7 and ISO 140-8. 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 to gather experience with this.

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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 the 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 140-6 and ISO 140-7, and in octave bands in accordance with that option in ISO 140-7 for field measurements only; and

c) defines single-number quantities for the impact sound reduction of floor coverings and floating floors from the results of measurements carried out in accordance with ISO 140-8.

The single-number quantities in accordance with this part of ISO 717 are intended for rating the impact sound insulation and for simplifying the formulation of acoustical requirements in buidling codes. 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 dealt with in annex A.

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

An example of the calculation of a single-number quantity is given in annex C.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 717. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 717 are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 140-6:—[1], *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 6: Laboratory measurements of impact sound insulation of floors.*

ISO 140-7:—[2], *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 7: Field measurements of impact sound insulation of floors.*

ISO 140-8:—[3], *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 8: Laboratory measurements of the reduction of transmitted impact noise by floor coverings on a standard floor.*

1) To be published. (Revision of ISO 140-6:1978)
2) To be published. (Revision of ISO 140-7:1978)
3) To be published. (Revision of ISO 140-8:1978)

3 Definitions

For the purposes of this part of ISO 717, the following definitions apply.

3.1 single-number quantity for impact sound insulation rating derived from one-third-octave band measurements: Value, in decibels, of the relevant reference curve at 500 Hz after shifting it in accordance with the method specified in this part of ISO 717.

3.2 single-number quantity for impact sound insulation rating derived from octave band measurements: Value, in decibels, 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.

NOTES

1 Terms and symbols for the single-number quantity used depend on the type of measurement. They 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.

2 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.

3.3 weighted reduction in impact sound pressure level: Difference between the weighted normalized impact sound pressure levels of a reference floor without and with a floor covering, obtained in accordance with the method specified in this part of ISO 717. This quantity is denoted by ΔL_w and is expressed in decibels.

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 massive 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. This quantity is denoted by $L_{n,eq,0,w}$ and is expressed in decibels.

Table 1 — Single-number 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, $L_{n,w}$	Normalized impact sound pressure level, L_n	ISO 140-6:—	equation (4)

Table 2 — Single-number 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, $L'_{n,w}$	Normalized impact sound pressure level, L'_n	ISO 140-7:—	equation (2)
Weighted standardized impact sound pressure level, $L'_{nT,w}$	Standardized impact sound pressure level, L'_{nT}	ISO 140-7:—	equation (3)

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

4.1 General

The values obtained in accordance with ISO 140-6 and ISO 140-7 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 3 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 massive floors) may contribute considerably to the unfavourable deviations.

4.3 Method of comparison

4.3.1 Measurements in one-third-octave bands

To evaluate the results of a measurement of L_n, L'_n or L'_{nT} in one-third-octave bands (given to one decimal place), shift the reference curve in steps of 1 dB towards the measured curve until the sum of unfavourable deviations is as large as possible but not more than 32,0 dB.

An unfavourable deviation at a particular frequency occurs when the results of measurements exceed the reference value. Only the unfavourable deviations shall be taken into account.

The value, in decibels, of the reference curve at 500 Hz, after shifting it in accordance with this procedure, is $L_{n,w}$, $L'_{n,w}$ or $L'_{nT,w}$ respectively.

4.3.2 Measurements in octave bands

To evaluate the results of a field measurement of L'_n or L'_{nT} in octave bands (given to one decimal place), shift the reference curve in steps of 1 dB towards the measured curve until the sum of unfavourable deviations is as large as possible but not more than 10,0 dB.

The value, in decibels, of the reference curve at 500 Hz, after shifting it in accordance with this procedure and then reducing it by 5 dB is $L'_{n,w}$ or $L'_{nT,w}$ respectively.

An unfavourable deviation at a particular frequency occurs when the results of measurements exceed the reference value. Take into account only the unfavourable deviations.

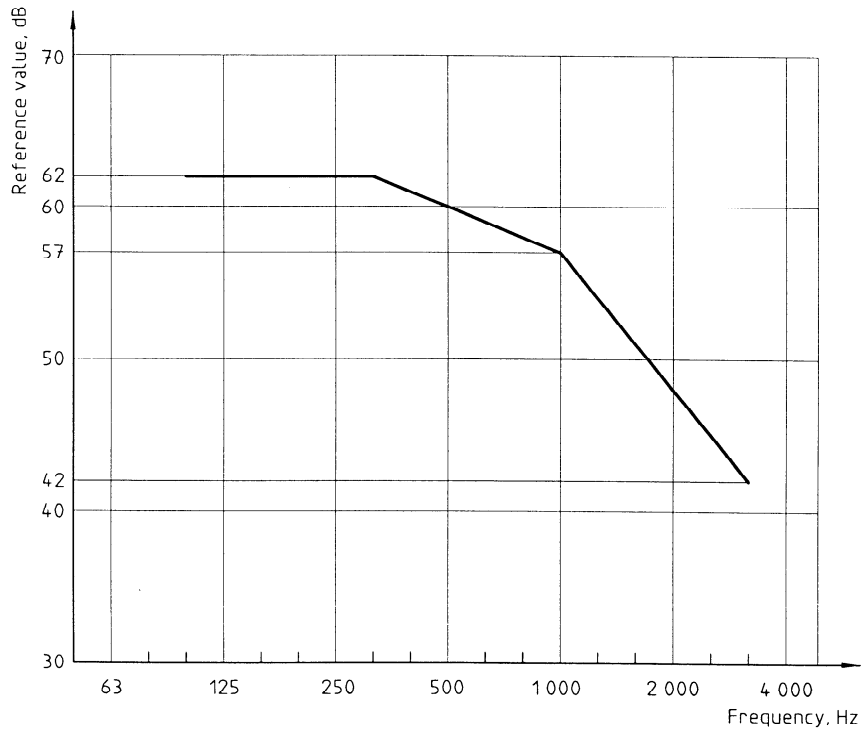

Figure 1 — Curve of reference values for impact sound, one-third-octave bands