SLOVENSKI STANDARD
SIST EN 12758:2011

01-maj-2011

Nadomešča:
SIST EN 12758:2004

Steklo v gradbeništvu - Steklo in izolirnost pred zvokom v zraku - Opis in opredelitev lastnosti

Glass in building - Glazing and airborne sound insulation - Product descriptions and determination of properties

Glas im Bauwesen - Glas und Luftschalldämmung - Definitionen und Bestimmung der Eigenschaften

Verre dans la construction - Vitrages et isolement acoustique - Descriptions de produits et détermination des propriétés

Ta slovenski standard je istoveten z: **EN 12758:2011**

ICS:

81.040.20	Steklo v gradbeništvu	Glass in building
91.120.20	Akustika v stavbah. Zvočna izolacija	Acoustics in building. Sound insulation

SIST EN 12758:2011 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 12758

January 2011

ICS 81.040.20; 91.120.20

Supersedes EN 12758:2002

English Version

Glass in building - Glazing and airborne sound insulation - Product descriptions and determination of properties

Verre dans la construction - Vitrages et isolement acoustique - Descriptions de produits et détermination des propriétés

Glas im Bauwesen - Glas und Luftschalldämmung - Produktbeschreibungen und Bestimmung der Eigenschaften

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Foreword

This document (EN 12758:2011) has been prepared by Technical Committee CEN/TC 129 “Glass in building”, the secretariat of which is held by NBN.

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of an identical text or by endorsement, at the latest by July 2011, and conflicting national standards shall be withdrawn at the latest by July 2011.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document replaces EN 12758:2002.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

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1 Scope

This European Standard assigns sound insulation values to all transparent, translucent and opaque glass products, described in the European Standards for basic, special basic or processed glass products, when intended to be used in glazed assemblies in buildings, and which exhibit properties of acoustic protection, either as a prime intention or as a supplementary characteristic.

This document outlines the procedure, by which glass products may be rated, according to their acoustic performance which enables assessment of compliance with the acoustic requirements of buildings.

Rigorous technical analysis of measurement data remains an option, but this standard is intended to enable the derivation of simpler indices of performance, which can be adopted with confidence by non-specialists.

By adopting the principles of this standard the formulation of acoustic requirements in Building Codes and for product specification to satisfy particular needs for glazing is simplified.

It is recognised that the acoustic test procedures contained within EN ISO 10140 relate only to glass panes and their combinations. Although the same principles should be followed as closely as possible, it is inevitable that some compromises are necessary, because of the bulkier construction of other glazing types, e.g. glass blocks, paver units, channel-shaped glass, structural glazing and structural sealant glazing. Guidelines on how to adapt the test procedures for these glass products are offered in Clause 4.

All the considerations of this standard relate to panes of glass/glass products alone. Incorporation of them into windows may cause changes in acoustic performance as a result of other influences, e.g. frame design, frame material, glazing material/method, mounting method, air-tightness, etc. Measurements of the sound insulation of complete windows (glass and frame) may be undertaken to resolve such issues.

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.

EN 572-1, *Glass in building — Basic soda lime silicate glass products — Part 1: Definitions and general physical and mechanical properties*

EN 572-2, *Glass in Building — Basic soda lime slicate glass products — Part 2: Float glass*

EN 572-3, *Glass in Building — Basic soda lime silicate glass products — Part 3: Polished wired glass*

EN 572-4, *Glass in building — Basic soda lime silicate glass products — Part 4: Drawn sheet glass*

EN 572-5, *Glass in Building — Basic soda lime silicate glass products — Part 5: Patterned glass*

EN 572-6, *Glass in building — Basic soda lime silicate glass products — Part 6: Wired patterned glass*

EN 572-7, *Glass in Building — Basic soda lime silicate glass products — Part 7: Wired or unwired channel shaped glass*

EN 1051-1, *Glass in building — Glass blocks and glass pavers — Part 1: Definitions and description*

EN 1096-1, *Glass in building — Coated glass — Part 1: Definitions and classification*

EN 1279-1, *Glass in Building — Insulating glass units — Part 1: Generalities, dimensional tolerances and rules for the system description*

EN 1748-1-1, *Glass in building — Special basic products — Borosilicate glasses — Part 1-1: Definition and general physical and mechanical properties*

EN 1748-2-1, *Glass in building — Special basic products — Glass ceramics — Part 2-1: Definitions and general physical and mechanical properties*

EN 1863-1, *Glass in building — Heat strengthened soda lime silicate glass — Part 1: Definition and description*

EN 12150-1, *Glass in building — Thermally toughened soda lime silicate safety glass — Part 1: Definition and description*

EN 12337-1, *Glass in building — Chemically strengthened soda lime silicate glass — Part 1: Definition and description*

EN 13024-1, *Glass in building — Thermally toughened borosilicate safety glass — Part 1: Definition and description*

EN 14178-1, *Glass in building — Basic alkaline earth silicate glass products — Part 1: Float glass*

EN 14179-1, *Glass in building — Heat soaked thermally toughened soda lime silicate safety glass — Part 1: Definition and description*

EN 14321-1, *Glass in building — Thermally toughened alkaline earth silicate safety glass — Part 1: Definition and description*

prEN 15681-1, *Glass in building — Basic alumino silicate glass products — Part 1: Definitions and general physical and mechanical properties*

prEN 15682-1, *Glass in building — Heat soaked thermally toughened alkaline earth silicate safety glass — Part 1: Definition and description*

prEN 15683-1, *Glass in building — Thermally toughened soda lime silicate channel shaped safety glass — Part 1: Definition and description*

EN ISO 10140:2010 (all parts), *Acoustics — Laboratory measurement of sound insulation of building elements*

EN ISO 717-1:1996, *Acoustics — Rating of sound insulation in buildings and of building elements — Part 1: Airborne sound insulation (ISO 717-1:1996)*

EN ISO 12543-1, *Glass in building — Laminated glass and laminated safety glass — Part 1: Definitions and description of component parts (ISO 12543-1:1998)*

EN ISO 12543-2, *Glass in building — Laminated glass and laminated safety glass — Part 2: Laminated safety glass (ISO 12543-2:1998)*

EN ISO 12543-3, *Glass in building — Laminated glass and laminated safety glass — Part 3: Laminated glass (ISO 12543-3:1998)*

ISO 140-2:1991, *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 2: Determination, verification and application of precision data*

ISO 16940, *Glass in building — Glazing and airborne sound insulation — Measurement of the mechanical impedance of laminated glass*

3 Terms and definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 10140:2010, ISO 140-2:1991 and EN ISO 717-1:1996 together with the following apply:

3.1.1
glass product
product manufactured from glass, i.e. basic glass, special basic glass, processed glass, for use in buildings/constructions

NOTE See Clause 4.

3.1.2
glazed assembly
combination of frame/support and glass product used for the determination of the acoustic performance

NOTE 1 The following are examples of such assemblies:

1) Glass block walls;

2) Paver unit panels;

3) Channel shaped glass panels, single or dual glazed;

4) Structural sealant glazing;

5) Structural assemblies.

NOTE 2 The dimensions of glass blocks, paver units and channel shaped glass do not allow them to be subjected to the standard test regime.

NOTE 3 Structural sealant glazing: is a ‘frameless’ glazing system that uses structural sealant to restrain the glazing. This method of restraint will influence the acoustic performance of the glass product.

NOTE 4 Structural assemblies consist of glass products that are connected by bolted metal fittings to one another and to structural supports, e.g. fin, etc.

3.1.3
single glazing
single pane of glass, that includes annealed, strengthened/toughened (by heat or chemical treatment), laminated/laminated safety and coated glasses, that is glazed into an opening

3.1.4
multiple glazing
two or more panes of glass that are separated by cavities either sealed or unsealed

NOTE 1 Multiple glazing incorporating hermetically sealed cavities, e.g. double glazing, triple glazing, etc., and are known as Insulating Glass Units.

NOTE 2 Multiple glazing with unsealed cavities when in an opening is known as coupled glazing, coupled or double windows. If in a proprietary frame it is known as secondary sash.

NOTE 3 When two panes of channel shaped glass are glazed flange to flange it is known as dual glazed.

3.1.5
insulating glass unit (IGU)
assembly consisting of at least two panes of glass, separated by one or more spacers, hermetically sealed along the periphery, mechanically stable and durable

NOTE 1 See EN 1279-1.

NOTE 2 Systems are available where the spacer and hermetic seal are included within a single edge sealing system.

NOTE 3 The hermetically sealed cavity may contain dry air or a number of other gas types, e.g. argon, xenon, krypton, etc.

3.1.6
laminated/laminated safety glass
assembly consisting of one sheet of glass with one or more sheets of glass and/or plastics glazing sheet material joined together with one or more interlayers

NOTE See EN ISO 12543-1.

3.1.7
interlayer
layer or material acting as an adhesive and separator between plies of glass and/or plastics glazing sheet material

NOTE 1 It can also give additional performance to the finished product e.g. impact resistance, resistance to fire, solar control, acoustic insulation.

NOTE 2 There are many types of interlayer. The most common ones are organic. However, for certain products, with resistance to fire performance, the interlayers are inorganic.

3.1.8
acoustic interlayer

interlayer that increases the Sound Reduction Index of the laminated glass

NOTE The interlayer may be evaluated in accordance to ISO 16940.

3.1.9
acoustic interlayer for reference glazing
acoustic interlayer with a measured loss factor of the 1st mode of the beam above or equal to 0,25 when evaluated in accordance to ISO 16940

3.2 Symbols

R	Sound Reduction Index
R_w	Weighted Sound Reduction Index
R_{tr}	Sound Reduction Index for Traffic Noise
C	Spectrum Adaption Term
C_{tr}	Spectrum Adaption Term for Traffic Noise

4 Glass products

4.1 Basic glasses

These are glass products manufactured from soda lime silicate glass in accordance with EN 572-1 and consist of the following:

- Float glass EN 572-2

- Polished wired glass EN 572-3
- Drawn sheet glass EN 572-4
- Patterned glass EN 572-5
- Wired patterned glass EN 572-6
- Wired and unwired channel shaped glass EN 572-7
- Glass blocks and paver units EN 1051-1

4.2 Special basic glasses

These are glass products manufactured from a variety of compositions, which are in accordance with appropriate European standards, and consist of the following:

- Borosilicate glass EN 1748-1-1
- Glass ceramics EN 1748-2-1
- Alkaline earth silicate glass EN 14178-1
- Alumino silicate glass prEN 15681-1

4.3 Processed glasses

4.3.1 Strengthened glasses

These are soda lime silicate glasses that have been strengthened by thermal or chemical means and are as follows:

- Heat strengthened EN 1863-1
- Chemically strengthened EN 12337-1

4.3.2 Thermally toughened safety glasses

These are glasses that have been toughened by thermal treatment and are as follows:

- Thermally toughened soda lime silicate safety glass EN 12150-1
- Thermally toughened borosilicate safety glass EN 13024-1
- Heat soaked thermally toughened soda lime silicate safety glass EN 14179-1
- Thermally toughened alkaline earth silicate safety glass EN 14321-1
- Heat soaked thermally toughened alkaline earth silicate safety glass prEN 15682-1
- Thermally toughened soda lime silicate channel shaped safety glass prEN 15683-1

4.3.3 Laminated glasses

These are glasses that are in accordance with EN ISO 12543-1 and consist of the following:

- Laminated glass EN ISO 12543-3
- Laminated safety glass EN ISO 12543-2

4.3.4 Coated glasses

These are glass panes that have been coated and are in accordance with EN 1096-1.

NOTE Coated glass may be manufactured from any of the glass types referred to in 4.1, 4.2, 4.3.1, 4.3.2 or 4.3.3.

4.3.5 Insulating glass units (IGU)

These are hermetically sealed insulating glass units, containing air or other gas, that are in accordance with EN 1279-1.

NOTE An IGU may be manufactured from any of the glass types or combination of the glass types referred to in 4.1, 4.2, 4.3.1, 4.3.2, 4.3.3 or 4.3.4.

5 Test methods

5.1 General

Acoustic performance data shall be obtained under the conditions specified by EN ISO 10140 and EN ISO 717-1. For laminated glasses, owing to temperature dependency, the specimen temperature shall be (21 ± 2)°C.

NOTE 1 For best reproducibility it is recommended that the test opening for glass panes, as described in EN ISO 10140, be adopted.

Some variation in panel size, etc., to those in EN ISO 10140, may be necessary for the testing of glazed assemblies, i.e. glass blocks, paver units, channel shaped glass, structural sealant glazing and structural assemblies in order to include a valid representation of all their features. Acoustic measurements of the performance of these products shall be made on assemblies or arrays of them, and not on individual elements. Factors which influence testing are size, jointing, etc.

NOTE 2 For large mixed components it may be more appropriate to employ intensity measurement techniques, according to the advice of a specialist.

Test reports on the sound insulation of glazing shall be obtained from measurements made under the conditions specified in EN ISO 10140 or, as closely as possible, for some unconventional glass products or assemblies, as acknowledged above. In all cases, constructional details shall be included, with statements, where appropriate, of:

a) type of glass;

b) glass thickness(es);

c) airspace(s)/cavity width(s);

d) gas filling - type and concentration;

e) for laminated glass, glass / plastics glazing sheet materials / interlayer build up - type, thickness(es) and number;

f) for laminated glass, the specimen temperature;