



SLOVENSKI STANDARD

SIST EN 1279-1:2004

01-september-2004

Steklo v gradbeništvu – Izolacijsko steklo – 1. del: Splošno, dimenzijska odstopanja in pravila za opis sistema

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

Glas im Bauwesen - Mehrscheiben-Isolierglas - Teil 1: Allgemeines, Maßtoleranzen und Vorschriften für die Systembeschreibung

Verre dans la construction - Vitrage isolant préfabriqué scellé - Partie 1 : Généralités, tolérances dimensionnelles et règles de description du système

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EUROPEAN STANDARD
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EN 1279-1

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

Verre dans la construction - Vitrage isolant préfabriqué et scellé - Partie 1 : Généralités, tolérances dimensionnelles et règles de description du système

Glas im Bauwesen - Mehrscheiben-Isolierglas - Teil 1: Allgemeines, Maßtoleranzen und Vorschriften für die Systembeschreibung

This European Standard was approved by CEN on 2 January 2003.

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.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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Foreword

This document (EN 1279-1: 2004) has been prepared by Technical Committee CEN /TC 129, "Glass in building", the secretariat of which is held by IBN.

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of an identical text or by endorsement, at the latest by December 2004, and conflicting national standards shall be withdrawn at the latest by December 2004.

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).

For relationship with EU Directive(s), see informative annex Z, which is an integral part of this document.

This European Standard "*Glass in Building - Insulating glass units*" consists of the following Parts

- *Part 1: Generalities, dimensional tolerances and rules for the system description.*
- *Part 2: Long term test method and requirements for moisture penetration.*
- *Part 3: Long term test method and requirements for gas leakage rate and for gas concentration tolerances.*
- *Part 4: Methods of test for the physical attributes of edge seals.*
- *Part 5: Evaluation of Conformity.*
- *Part 6: Factory production control and periodic tests.*

The annexes A and B are normative, and annex C is informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

EN 1279-1:2004 (E)**1 Scope**

This European Standard is the product standard for insulating glass units, which defines insulating glass units, and ensures by means of the evaluation of conformity to this standard that over time:

- energy savings are made because the U-value and solar factor do not change significantly;
- health is preserved because sound reduction and vision do not change significantly;
- safety is provided because mechanical resistance does not change significantly.

It covers characteristics that are of importance for trade. Marking conditions are included.

NOTE 1: For glass products with electrical wiring or connections for, e.g. alarm or heating purposes, other directives, e.g. Low Voltage Directive, may apply.

The main intended uses of the insulating glass units are installations in windows, doors, curtain walling, roofs and partitions where there exists protection against direct ultraviolet radiation at the edges.

NOTE 2: In cases where there is no protection against direct ultraviolet radiation at the edges, such as structural sealant glazing systems, additional European technical specifications should be followed.

Units that are intended for artistic purposes are excluded from this standard.

This Part of this European standard, which is inextricably bound up with the other Parts of the standard, covers the materials, the rules for the system description, the optical and visual quality and the dimensional tolerances for insulating glass units.

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2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated by amendment or revision. For undated references, the latest edition of the publication referred to applies.

EN 572 *Glass in Building - Basic soda lime silicate glass products -*

Parts 1: Definitions and general physical and mechanical properties

Part 2: Float glass

Part 3: Polished wired glass

Part 4: Drawn sheet glass

Part 5: Patterned glass

Part 6: Wired patterned glass I

Part 8: Supplied and final cut sizes

EN 1096-1 *Glass in Building - Coated glass - Part 1: Definitions and classification*

- EN 1279-2 *Glass in Building - Insulating glass units - Part 2: Long term test method and requirements for moisture penetration*
- EN 1279-3 *Glass in Building - Insulating glass units - Part 3: Long term test method and requirements for gas leakage rate and for gas concentration tolerances*
- EN 1279-4 *Glass in Building - Insulating glass units - Part 4: Methods of test for the physical attributes of edge seals*
- EN 1279-6 *Glass in Building - Insulating glass units - Part 6 Factory production control and periodic tests*
- EN 1748-1-1 *Glass in Building - Special Basic products - Part 1-1: Borosilicate glasses*
- EN 1748-2-1 *Glass in Building - Special Basic products - Part 2-1: Glass ceramics - Definition and description*
- 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 ISO 12543 *Glass in Building - Laminated glass and laminated safety glass*
Part 1: Definition and description of component parts (ISO 12543-1:1998)
Part 2: Laminated safety glass (ISO 12543-2:1998)
Part 3: Laminated glass (ISO 12543-3:1998)
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Part 6: Appearance (ISO 12543-6:1998)
- EN 13024-1 *Glass in Building - Thermally toughened borosilicate safety glass - Part 1: Definition and description*
- prEN 14178-1 *Glass in Building - Basic alkaline earth silicate glass products - Part 1: Float glass*
- prEN 14179-1 *Glass in Building - Heat soaked thermally toughened soda lime silicate safety glass - Part 1: Definition and description*
- prEN 14321-1 *Glass in Building - Thermally toughened alkaline earth silicate safety glass - Part 1: Definition and description*

3 Definitions

For the purpose of this standard, the following definitions apply.

3.1

insulating glass unit (IGU)

an assembly consisting of at least two panes of glass, separated by one or more spacers, hermetically sealed along the periphery, mechanically stable and durable (see 5.1).

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

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3.2 system

a range of insulating glass units with a common edge seal profile, edge seal materials and edge seal components as described in the system description. The range having a similar edge seal performance, e.g. moisture penetration index, gas loss rate.

3.3 system description

description of components and the edge seal of the insulating glass unit in terms relevant to identification, and in terms relevant to edge seal performance, e.g. moisture penetration index, gas loss rate.

3.4 permeation geometry

the geometry of that part of the edge seal of the insulating glass unit through which the vapour and gas transmission takes place. For an example, see figure 1.

NOTE: For TPS-type systems the permeation is through the body of the system rather than around the spacer and through the sealant.

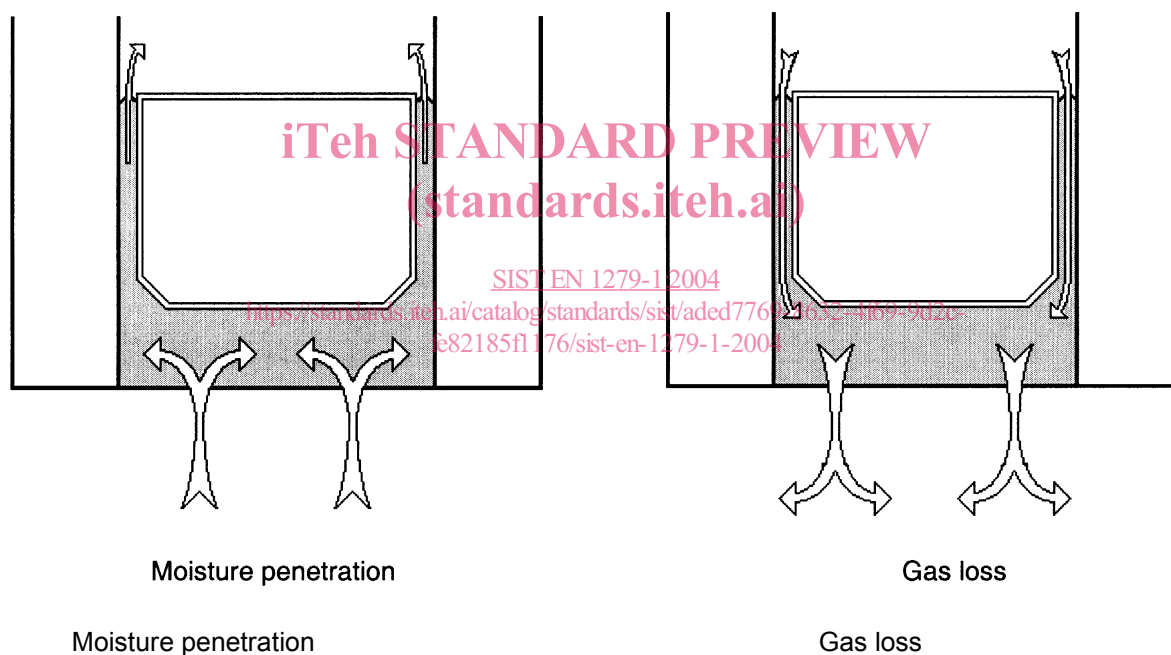


Figure 1 — Example of a permeation geometry

3.5 cavity (cavities)

the gap(s) between the panes of an insulating glass unit.

3.6 channel

a profile covering and protecting the edges and/or making it possible to install the unit in frames originally designed for single glass.

3.7 corner piece

a joint piece that acts as a corner of the spacer frame.

3.8**dehydrated air or gas**

air or other gas with a low water vapour partial pressure which, when introduced into the cavity, eliminates the risk of condensation.

3.9**desiccant**

a product designed to lower the water vapour partial pressure inside the insulating glass unit.

3.10**desiccant cartridge**

a metal or plastic section, containing a desiccant, placed somewhere in the cavity.

3.11**edge seal**

the processed edge of an insulating glass unit, designed to ensure that moisture and gas transmissions between the inside and outside of the unit are limited, designed with a certain mechanical strength, and designed with a certain physical and chemical stability.

3.12**glass pane (also referred to as glass component)**

one sheet of glass.

3.13**inner sealant**

a sealant which, when applied, is in contact with the cavity of the insulating glass units.¹

3.14**joint piece**

a piece that connects parts of a spacer.

3.15**outer sealant**

a sealant which, when applied, is in contact with the environment outside the insulating glass units².

3.16**sealant**

organic material that, after application, has sufficient mechanical properties of cohesion and of adhesion to glass and/or spacer for use in edge seals. For the purpose of this standard, silicone sealant is considered to be organic.

3.17**spacer**

a component used to separate the panes and control the width of the gap at the edge of the unit.

3.18**external condensation**

condensation appearing on the glass panes of an insulating glass unit either on the room side surface or on the external surface.

3.19**internal condensation**

condensation appearing on the glass panes within the cavity of an insulating glass unit.

¹ In the case of single seal insulating glass units, the inner sealant is the same as the outer sealant.

² In the case of single seal insulating glass units, the outer sealant is the same as the inner sealant

EN 1279-1:2004 (E)**3.20****absolute limit**

a value of a parameter, defined in the system description (annex A), which when exceeded requires:

- remedial action in manufacturing, and
- removal of products from production for repair or destruction.

3.21**action limit**

a value of a parameter, defined in the system description (annex A), which when exceeded requires:

- remedial action in manufacturing.

4 Insulating glass unit systems**4.1 General**

The great number of possible different insulating glass units allows a distinction to be made between systems, based on common edge seal profiles, edge seal materials and other edge components. The possibility of substitution of different edge seal materials and other edge components are given in annex B table B.1 and B.2 and in EN 1279-4, and change of desiccant is given in annex B, table B.3.

For conformity control purposes, the manufacturer shall describe his system in a system description, which will be a part of the factory production control documentation, or of the quality assurance system, whichever is applied. See also EN 1279-6.

Disclosure of the system description is entirely at the discretion of the insulating glass unit manufacturer or his agent.

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The rules for the system description are given in annex A. It contains mainly a list of the applied edge seal materials and components, the nominal edge seal dimensions of the finished product, the action limits (see 3.21) and the absolute limits (see 3.20).

Insulating glass unit systems can vary in the materials listed below, the limits in height, width, cavity width, glass thickness and number of cavities. These lists are not exhaustive.

4.2 The glass panes/components

The glass pane(s)/component(s) shall be one of the following:

a) basic glass products according to EN 572-1:

- float glass according to EN 572-2
- polished wired glass according to EN 572-3
- drawn sheet glass according to EN 572-4
- patterned glass according to EN 572-5
- wired patterned glass according to EN 572-6

b) special basic glass products:

- borosilicate glass according to EN 1748-1-1
- glass ceramics according to EN 1748-2-1
- alkaline earth silicate glass according to prEN 14178-1

c) processed glasses:

- heat strengthened soda lime silicate glass according to EN 1863-1
- thermally toughened soda lime silicate safety glass according to EN 12150-1
- heat soaked thermally toughened soda lime silicate safety glass according to prEN 14179-1
- chemically strengthened soda lime silicate glass according to EN 12337-1
- thermally toughened borosilicate safety glass according to EN 13024-1
- thermally toughened alkaline earth silicate safety glass according to prEN 14321-1
- laminated glass and laminated safety glass according to EN ISO 12543 Parts 1, 2, 3
- coated glass according to EN 1096-1
- surface worked glass (e.g. sand blasted, acid etched)

d) or other processed glasses, e.g. glass/plastic composites, consisting of one or more of the above basic or processed glasses and one or more layers of sheet plastics glazing material,

e) or other glasses covered, or not, by European specifications.

The glass panes, processed or unprocessed, may be:

- transparent, translucent or opaque
- clear or coloured

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4.3 Cavity fillings

The cavity between two panes may be filled with air and/or other gases.

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4.4 Cavity inserts

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The cavity may contain inserts, such as a grid for aesthetic purposes, which shall meet the volatile content or the fogging test in EN 1279-6.

4.5 Shapes

The panes may have any shape, e.g. rectangular, trapezium, triangular, circular, etc.

4.6 Curved insulating glass units

Units with a bending radius greater than 1 metre comply with this standard without having to undergo the additional tests on curved test pieces.

Units with a bending radius equal to or less than 1 metre comply with this standard if in addition curved test pieces with the same or smaller bending radius meet the moisture penetration requirements of EN 1279-2. The test specimens should be curved with the curving axis parallel with the longest side.

5 Requirements

5.1 Conformity with the definition of insulating glass units

Products intended to belong to the insulating glass system shall conform to the definition of insulating glass units. Durability being ensured by the following: