BRITISH STANDARD

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1279-5:2005
+A2:2010

Glass in building — Insulating glass units

Part 5: Evaluation of conformity

ICS 81.040.20

BSI
British Standards

National foreword

This British Standard is the UK implementation of EN 1279-5:2005+A2:2010. It supersedes BS EN 1279-5:2005+A1:2008 which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to CEN text carry the number of the CEN amendment. For example, text altered by CEN amendment A1 is indicated by ⟨A1⟩ ⟨/A1⟩.

The UK participation in its preparation was entrusted by Technical Committee B/520, Glass and glazing in building, to Subcommittee B/520/2, Insulating glass products.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

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Glass in building - Insulating glass units - Part 5: Evaluation of conformity

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This European Standard was approved by CEN on 24 March 2005 and includes Amendment 1 approved by CEN on 2 October 2008 and Amendment 2 approved by CEN on 27 March 2010.

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 CEN Management Centre or to any CEN member.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Management Centre: Avenue Marnix 17, B-1000 Brussels

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Contents

Foreword

This document (EN 1279-5:2005+A2:2010) 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of an identical text or by endorsement, at the latest by November 2010, and conflicting national standards shall be withdrawn at the latest by November 2010.

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 includes Amendment 1 approved by CEN on 2008-10-02 and Amendment 2 approved by CEN on 2010-03-27.

This document supersedes [A2] EN 1279-5:2005+A1:2008 [/A2].

The start and finish of text introduced or altered by amendment is indicated in the text by tags [A1] [/A1] and [A2] [/A2].

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 ZA, which is an integral part of this document.

This Part of the European Standard does not stand-alone, it is part of one standard with the general title *Glass in building - Insulating glass units*:

— *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*

This European Standard contains other aspects of importance of trade.

This European Standard includes a Bibliography.

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

1 Scope

This European Standard specifies requirements, the evaluation of conformity and the factory production control of insulating glass units for use in buildings.

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 ultra-violet radiation at the edges, such as structural sealant glazing systems, additional European technical specifications should be followed (e.g. ⟨A1⟩ EN 15434 ⟨A1⟩, ⟨A1⟩ EN 13022-1 ⟨A1⟩).

NOTE 3 Units for which the intended use is only 'artistic' and therefore no essential requirement is required, are not subject to CE marking and are not part of this European Standard.

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 356, *Glass in building — Security glazing — Testing and classification of resistance against manual attack*

EN 410, *Glass in building — Determination of luminous and solar characteristics of glazing*

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

EN 673, *Glass in building — Determination of thermal transmittance (U value) — Calculation method*

EN 674, *Glass in building — Determination of thermal transmittance (U value) — Guarded hot plate method*

EN 675, *Glass in building — Determination of thermal transmittance (U value) — Heat flow meter method*

EN 1063, *Glass in building — Security glazing — Testing and classification of resistance against bullet attack*

EN 1279-1:2004, *Glass in building — Insulating glass units — Part 1: Generalities, dimensional tolerances and rules for the system description*

EN 1279-2:2002, *Glass in building — Insulating glass units — Part 2: Long term test method and requirements for moisture vapour penetration*

EN 1279-3:2002, *Glass in building — Insulating glass units — Part 3: Long term test method and requirements for gas leakage rate and for gas concentration tolerances*

EN 1279-4:2002, *Glass in building — Insulating glass units — Part 4: Methods of test for the physical attributes of edge seals*

EN 1279-6:2002, *Glass in building — Insulating glass units — Part 6: Factory production control and periodic tests*

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, ⟨A1⟩ *Glass in building — Special basic products — Glass ceramics — Part 2-1: Definitions and general physical and mechanical properties* ⟨A1⟩

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 12600, *Glass in building — Pendulum test — Impact test method and classification for flat glass*

EN 12758, *Glass in building — Glazing and airborne sound insulation — Product descriptions and determination of properties*

EN 12898, *Glass in building — Determination of the emissivity*

[A1] EN 13022-1, *Glass in building — Structural sealant glazing — Part 1: Glass products for structural sealant glazing systems for supported and unsupported monolithic and multiple glazing* [A1]

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

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using* [A1] *deleted text* [A1] *data from reaction to fire tests*

EN 13501-2, *Fire classification of construction products and building elements — Part 2: Classification using* [A1] *deleted text* [A1] *data from fire resistance tests, excluding ventilation services*

[A1] EN 13501-5 [A1], *Fire classification of construction products and building elements — Part 5: Classification using data from external fire exposure to roofs tests*

EN 13541, *Glass in building — Security glazing — Testing and classification of resistance against explosion pressure*

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

[A1] EN 15434, *Glass in building — Product standard for structural and/or ultra-violet resistant sealant (for use with structural sealant glazing and/or insulating glass units with exposed seals)* [A1]

[A1] *deleted text* [A1]

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 1279-1:2004, EN 1279-2:2002, EN 1279-3:2002, EN 1279-4:2002 and EN 1279-6:2002 and the following apply.

3.1
initial type testing
determination of the performance of a product (characteristic, durability), on the basis of either actual tests or other procedures (such as conventional, standardised, tabulated or general accepted values, standardised or recognised calculation methods, test reports when made available,), in accordance with this European Standard that demonstrates compliance with this European Standard

3.2
test report
document that covers the results of tests undertaken on a representative sample of the product from production or on a prototype design of the product

3.3
product description
document that details the relevant parameters, e.g. process conditions, structure, etc, for defining a product that complies with the standard. It includes specific references to characteristics that are modified by the production process

3.4
significant change
variation in performance beyond the permitted tolerance for the characteristic

4 Requirements

4.1 Product description

For conformity purposes the insulating glass unit manufacturer is responsible for the preparation and maintenance of the product description. This description shall describe the product and/or product families.

Disclosure of the product description shall be at the discretion of the insulating glass unit manufacturer or his agent except in the case of regulatory requirements.

The description shall contain at least a normative part. The description may also contain an informative part, when the manufacturer foresees further development of the product.

The normative part of the description shall contain the following minimum information:

— a reference to EN 1279 Part 1, 2, 3, 4 and 6 and all other standards with which the manufacturer claims compliance;

— system description.

The definition of product families shall be consistent with the normative part of the product description.

The substitution of materials shall maintain the conformity with the product description. The substituting material can be added to the product family and also the product description when compliance has been demonstrated.

4.2 Conformity with the definition of insulating glass units

Products shall conform to the definition and fulfil the requirements of insulating glass units as defined in EN 1279-1.

4.3 Determination of the characteristic's performances

4.3.1 Characteristics of glass panes for use in insulating glass units

For panes made of glass covered by European specifications generally accepted values, declared values, or calculated values of the characteristics listed in Table 1 shall be used.

For panes made of glass not covered by European specifications measured values of the characteristics listed in Table 1 shall be used, and their chemical and mechanical stability over time shall be demonstrated (refer to 5.2.4).

Table 1 - Necessary information on characteristics of glass panes for use in insulating glass units

Characteristic	Symbol	Unit
- density	ρ	kg/m³
- hardness	$HK_{0,1/20}$	GPa
- Young's modulus	E	Pa
- Poisson's ratio	μ	Dimensionless
- characteristic bending strength	f_k	Pa
- specific heat capacity	c	J/(kg·K)
- coefficient of linear expansion	α	K^{-1}
- thermal conductivity	λ	W/(m·K)
- mean refractive index to visible radiation	n	Dimensionless
- emissivity	ε	Dimensionless
- light transmittance	τ_v	Dimensionless
- solar direct transmittance	τ_e	Dimensionless
- total solar energy transmittance	g	Dimensionless

4.3.2 Determination of characteristics of insulating glass units

4.3.2.1 General

If the insulating glass manufacturer wishes to claim that any performance characteristic is independent of the production equipment used then the factory production control system shall be in accordance with this European Standard including his specific process control conditions.

4.3.2.2 Safety in the case of fire - Resistance to fire

Fire resistance shall be determined and classified in accordance with EN 13501-2.

NOTE EN 357 may be used as a classification reference specific to fire resistant glazed elements.

4.3.2.3 Safety in the case of fire - Reaction to fire

Reaction to fire shall be determined and classified in accordance with EN 13501-1.

For classification, consideration shall be given to:

a) the following product changes require new type testing on reaction to fire:

— reduction of the reaction to fire classification of the glass components in the insulating glass unit;

— reduction of the reaction to fire performance of the organic sealant in the edge seal;

b) however when not tested, the insulating glass unit shall be classified either:

— by the reaction to fire classification of the glass component used in the insulating glass unit, or

— by the classification of an insulating glass units using the same organic sealant in the edge seal,

— the classification claimed shall be the lower of the two possibilities.

4.3.2.4 Safety in the case of fire - External fire performance

Where the manufacturer wishes to declare external fire performance (e.g. when subject to regulatory requirements), the product shall be tested and classified in accordance with [A1] EN 13501-5 [A1].

NOTE Compliance with this requirement is not possible until a version of [A1] EN 13501-5 [A1] later than 2002 becomes available.

For classification, consideration shall be given to:

a) the following product changes require new type testing on external fire behaviour:

   - reduction of external fire behaviour of the glass component in the insulating glass unit;

b) however when not tested, the insulating glass unit shall be classified by the external fire performance of the glass components used in the insulating glass unit. The classification claimed shall be that of the glass component with least performance.

4.3.2.5 Safety in use - Bullet resistance: shatter properties and resistance to attack

Bullet resistance shall be determined and classified in accordance with EN 1063.

In those instances when a bullet resistant glass component is used as the non-attack face of an insulating glass unit then there is no need to test. The classification of the insulating glass unit shall be the same as the glass component used.

4.3.2.6 Safety in use - Explosion resistance: shatter properties and resistance to impact

Explosion resistance shall be determined and classified in accordance with EN 13541.

In those instances when an explosion resistant glass component is used as the non-attack face of an insulating glass unit then there is no need to test. The classification of the insulating glass unit shall be the same as the glass component used.

4.3.2.7 Safety in use - Burglar resistance shatter properties and resistance to attack

Burglar resistance shall be determined and classified in accordance with EN 356.

In those instances when a burglar resistant glass component is used as the non-attack face of an insulating glass unit then there is no need to test. The classification of the insulating glass unit shall be the same as the glass component used.

4.3.2.8 Safety in use - Pendulum body impact resistance: shatter properties (safe breakability) and resistance to impact

Pendulum body impact resistance shall be determined and classified on the glass components in accordance with EN 12600.

NOTE EN 12600 tests and classifies individual pane of glass and NOT products such as insulating glass units.

As not tested, the insulating glass unit shall be classified the same as the pendulum body impact resistance of the weakest glass component used in the insulating glass unit. [A1] If the identification of the product composition is clear enough to avoid confusion, the performances of each component will be given, in the order given by the mentioned composition. [A1]

[A1] The performances are these of the components tested as single glass, according to EN 12600 and 4.3.2.8. Care should be taken to place the insulating glass unit in a position corresponding to the expected performances. [A1]

4.3.2.9 Safety in use - Mechanical resistance: Resistance against sudden temperature changes and temperature differentials

The resistance against sudden temperature changes and temperature differentials is a generally accepted value that is given in the appropriate standards: e.g. EN 1863-1, EN 12150-1, EN 12337-1, EN 13024-1, etc., and shall be ensured by compliance with this European Standard.

4.3.2.10 Safety in use - Mechanical resistance: Resistance against wind, snow, permanent load and/or imposed loads of the glass unit

The ordered assemblies of insulating glass units (thickness and types of glass components, cavity width) shall ensure the resistance against wind, snow, permanent load, and other mechanical, (quasi-) static action, which shall be checked in accordance with prEN 13474.

As long as on the concerned construction or building site no part of prEN 13474 is applicable, then the current method of determining mechanical resistance in the country of destination shall be applied.

The manufactured or supplied thickness of insulating glass shall conform to the ordered thickness and assembly.

The edge seal strength determined in accordance with EN 1279-4 is part of the definition of insulating glass units and is not subject for separate information. When additional ultraviolet resistance and/or increased mechanical resistance is required (e.g. where no protection against ultraviolet is applicable, or where insulating glass units are used in structural sealant glazing), the edge seal strength shall be determined in accordance with [A1] EN 13022-1 [A1] using a sealant in accordance with [A1] EN 15434 [A1]. See Annex [A2] B [A2].

4.3.2.11 Direct airborne sound reduction

The sound reduction indexes shall be determined in accordance with EN 12758.

4.3.2.12 Energy conservation and heat retention - Thermal properties

The thermal transmittance value (U-value) shall be determined by calculation in accordance with EN 673 with:

— emissivity ε: the declared value of the glass manufacturer. If the information is not available, the emissivity shall be determined in accordance with EN 12898;

— nominal thickness of the glass panes;

— nominal thickness of any other material layer, if any;

— the nominal cavity width; assuming that the panes are parallel;

— the nominal gas concentration $c_{i,o}$, or the final gas concentration $c_{i,f}$ (see EN 1279-3).

NOTE In the case of gas filled units EN 1279-3 should be consulted in order that the *U*-value for publication includes all the relevant negative aspects.

In those instances when the thermal transmittance value (U-value) cannot be calculated then it shall be determined by testing in accordance with EN 674 or EN 675.

4.3.2.13 Energy conservation and heat retention - Radiation properties: Light transmittance and reflectance

The light transmittance and reflectance shall be determined in accordance with EN 410.

4.3.2.14 Energy conservation and heat retention - Radiation properties: Solar energy characteristics

The solar energy characteristic shall be determined in accordance with EN 410.

4.4 Durability

When products conform to the definition of insulating glass unit as in 4.2, the characteristics' performances in 4.3.2 are ensured during an economically reasonable working life.

The durability of insulating glass units, including their characteristics, shall be insured by the following:

— compliance with this European Standard;

— compliance with instructions from the glass product manufacturer or supplier.

The manufacturer shall supply specific installation instructions or make reference to appropriate technical specifications, see also Annex ⟨A2⟩ C ⟨A2⟩.

NOTE The durability of glass products depends on:

– building and construction movements due to various actions;

– building and construction vibrations due to various actions;

– deflection and racking of the glass support due to various actions;

– glass support design (e.g. drainage of infiltrated water in the rebate, prevention of direct contact between glass support members and glass);

– accuracy of glass support and glass support member dimensions;

– quality of the assembling of glass support members up to a glass support;

– quality of installation of the glass support into or onto the buildings or constructions;

– glass support expansion due to adsorbed moisture from the air or other sources;

– the quality of installation of the glass product into or onto its support.

4.5 Dangerous substances

Materials used in products shall not release any dangerous substances in excess of the maximum permitted levels specified in a relevant European Standard for the material or permitted in the national regulations of the Member State of destination.

5 Evaluation of conformity

5.1 General

Evaluation of conformity in accordance with this document shall be as a result of FPC and ITT in accordance with this European Standard.

1) Factory production control:

   this shall include, the following:

   a) inspection of samples taken at the factory in accordance with a prescribed test plan;

   b) initial inspection of the factory and of factory production control;

c) continuous surveillance and assessment of the factory production control.

2) Initial type testing of the product.

NOTE There may be a need to involve a third party, with 1b, 1c, and/or 2, for the purpose of regulatory marking (see Annex ZA).

5.2 Initial type testing of the product (see 5.1, 2))

5.2.1 General

All the product's characteristics shall be initial type tested to verify they are in conformity with the requirements of this European Standard. In addition instead of performing any actual testing, initial type testing may make use of:

— generally accepted and/or conventional and/or standardised values, in the Clause 2 referenced standards, or in publications that are referred to in these standards;

— standardised calculation methods and recognised calculation methods in Clause 2 referenced standards, or in publications that are referred to in these standards;

— test report(s) on the basis of 5.2.3 when made available;

〚A2〛

— 'other party ITT results'; in accordance with Annex A (normative); 〈A2〉

— where components are used whose characteristics have already been determined, by the component manufacturer, on the basis of conformity with other product standards, these characteristics need not be reassessed providing they remain unchanged by the manufacturing process;

— release of dangerous substances may be assessed indirectly by controlling the content of the substance concerned;

— durability may be assessed indirectly by controlling the production processes according to this European Standard.

NOTE 1 Products CE marked in accordance with appropriate harmonised European specifications may be presumed to have the performances stated with the CE marking.

NOTE 2 There may be a need to involve a third party for the purpose of regulatory marking (see Annex ZA).

When actual testing is required then the Initial Type Testing (ITT) shall be undertaken on a sample representative of the product taken from direct production or a prototype, any plant and/ or line.

Whenever a change occurs in the raw material or the production process (subject to the definition of the family), which would change significantly one or more of the characteristics, the type tests shall be repeated for the appropriate characteristics.

5.2.2 Multiple lines/sites

If a manufacturer operates one and/or more lines and/or sites, the following can reduce the requirement for multiple Initial Type Testing (ITT):

a) the manufacturers' technical file for a product shall specifically cover all sites and/or lines of the same manufacturer[1];

b) the manufacturer shall establish a direct relationship between production control, initial type testing and on-going internal audit testing;

c) the manufacturer shall have a responsible individual designated to ensure product compliance based on:

— the operation of a consistent Factory Production Control system on all applicable sites and/or lines;

— the manufacturer having obtained evidence that shows the product to be consistent, with respect to both product characteristics and intended use characteristics;

— the manufacturer has in place an internal auditing scheme, including product consistency.

5.2.3 Historic data

(a) For all characteristics except those listed in 5.2.4 the following applies:

Tests previously performed in accordance with the provisions of this document (same product, same characteristic(s), same or more onerous test method, sampling method and attestation of conformity) may be taken into account.

(b) For characteristics listed in 5.2.4, the following applies:

Tests previously performed in accordance with the provisions of this European Standard may be taken into account when all of the following conditions are met:

1) a Notified Body has confirmed the results of tests conducted by a non-notified body and is satisfied with the competence of the testing body;

2) tests have been conducted in accordance with a prEN version that shall not be materially different from the EN with regard to the impact on testing;

3) the test work has been completed before the end of the transition period, i.e. within 21 months of the date of availability of this document.

5.2.4 Initial type testing of Insulating glass units

To establish if a product conforms to the definition of insulating glass units initial type testing shall consist of fulfilling the requirements of Tables 2 and 3.

[1] The terms 'manufacturer' and 'producer' are understood as being synonyms (see CPD working document NB-CPD/02/019-issued 24 April 2002 – page1).

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Table 2 - Seal performance, validation method and requirements for IGUs

Applicable to:	Seal performance:	Validation method: (Demonstration by means of available test report or by testing)	Requirement:
All systems of IGU	Moisture vapour penetration	EN 1279-2	refer to EN 1279-2
	Adhesion sealant-glass (*)	EN 1279-4	refer to EN 1279-4
NOTE Tests can be carried out by different test laboratories. (*) The test report of the component manufacturer may be used to validate the ITT test.			

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A1

Table 3 - Seal performance, supplementary validation methods and supplementary requirements for gas-filled insulating glass units and units with coated glass

Applicable to:	Seal performance:	Validation method: (Demonstration by means of available test report or by testing)	Requirement:
Gas-filled IGU: Type of gas	Gas leakage rate	EN 1279-3	refer to EN 1279-3
Gas filled units: gas concentration		Subject of factory production control in accordance with EN 1279-6	refer to EN 1279-6:2002, Annex A.3
Seal bonding to glass coating (*)	Adhesion: - sealant/coating - interlayers of coating	EN 1279-4:2002, Annex D	refer to EN 1279-4
NOTE Tests can be performed by different test laboratories. (*) The test report of the component manufacturer may be used to validate the ITT test.			

A1

Substitution of materials and of components shall maintain the conformity of the system with the definition of insulating glass units. The relevant seal properties, components and the related derived requirements are summarized in EN 1279-1:2004, Tables B.1 and B.2, together with the validation methods.

The component manufacturer test reports may be used to validate the substitution. During factory production control the short climate test value of the test report shall be confirmed by the outcome value of the periodic test of the factory production control. Only one substitution shall be made at any one time. When a relevant material changes the short climate test shall be repeated (EN 1279-6:2002, B.4.2). When meeting the requirements, the substituting materials and components shall be added to the system description.

In case of system description (processed edge seal description) change, test report on prototype can be used. During factory production control the short climate test value of the test report shall be confirmed by the outcome value of the periodic test of the factory production control.

If glass panes are used which are not covered by European specifications, it shall be demonstrated that those glasses have a chemical and mechanical stability over time comparable with:

— soda lime silicate glass according to EN 572-1;

— or borosilicate glass according to EN 1748-1-1;

— or glass ceramics according to EN 1748-2-1;

— or alkaline earth silicate glass according to EN 14178-1.

5.2.5 Initial type testing of performances of characteristics (5.1, 2))

All characteristics in 4.3.2 shall be subject to initial type tests in accordance with 5.2.1.

5.3 Factory production control and inspection of samples in accordance with a prescribed test plan (5.1, 1) and 2))

Factory production control means the permanent internal control of production exercised by the manufacturer.

A factory production control according to EN 1279-6:2002, 3.1 satisfies. The EN 1279-6 summarises also the tests to be carried out by the manufacturer as part of the production control in the factory, and as further testing of samples taken at the factory in accordance with a prescribed test plan.

In the case of components and materials substitution, when a relevant material changes the short climate test shall be repeated (EN 1279-6:2002, B.4.2).

Relevant materials are:

— sealants (inner and/or outer);

— spacer (excluding the profile if system description does not change);

— amount of dessicant and type of dessicant (if Tc and initial loss on ignition are different).

In the case of system description (processed edge seal description) change, test report on prototype can be used. During factory production control the short test value of the test report shall be confirmed by the outcome value of the periodic test of the factory production control.

NOTE 1 The short climate test as well as the other factory production control tests may be carried out by the manufacturer himself or be sub-contracted to a third party.

NOTE 2 A factory production control system similar to EN ISO 9001 made product specific to this European Standard is deemed to satisfy the requirements of this clause.

5.4 Initial inspection of factory and of factory production control (5.1, 1), 2))

The initial inspection of the factory and of the factory production control shall cover the parameters listed in Table 4 in conjunction with EN 1279-6:2002, Annex A.

NOTE 1 There may be a need to involve a third party for the purpose of regulatory marking (see Annex ZA).

Table 4 - Characteristics of interest for the Factory Production Control

Nr	Characteristic	Interested parameter related to the characteristic	For details, refer to EN 1279-6
1	Fire resistance Reaction to fire External fire	- Checking incoming materials - Checking production control - Labelling outgoing insulating glass units - Edge seal dimensions, gas filling rate, flatness and fogging - Periodic, low frequency tests and inspections	Annexes A, B and C
2	Release of dangerous substances	- Checking incoming materials	Annex A
3	Bullet resistance Explosion resistance Burglar resistance Human impact resistance Resistance against sudden temperature changes and temperature differentials Wind, snow, permanent and imposed load resistance of the glass unit Wind, snow, permanent and imposed load resistance of the edge seal	- Checking incoming materials - Checking production control - Labelling outgoing insulating glass units - Edge seal dimensions, gas filling rate, flatness and fogging - Periodic, low frequency tests and inspections	Annexes A, B and C
4	Sound reduction Light transmittance and reflection Solar energy characteristic Thermal conductivity	- Checking incoming materials - Checking production control - Labelling outgoing insulating glass units - Edge seal dimensions, gas filling rate, flatness and fogging - Periodic, low frequency tests and inspections	Annexes A, B and C

5.5 Continuous surveillance and assessment of the factory production control (5.1, 1c))

The continuous surveillance and assessment of the factory production control shall cover the parameters listed in Table 4 in conjunction with EN 1279-6:2002, Annex A.

NOTE There may be a need to involve a third party for the purpose of regulatory marking (see Annex ZA).

The frequency of production surveillance shall be twice per year for new production facilities or for facilities that do not already have an established factory production control system in accordance with this European Standard.

When assessment of FPC fails to identify major non-conformances during four successive assessments, the frequency can be reduced to once a year.

When a major non-conformance is recorded, the inspection shall be repeated within two month. The frequency of production surveillance shall return to, or remain at twice a year. When the repeated inspection also results in a non-conformance, then the production shall be subject within two months to a repeated initial inspection of the factory and of the factory production control together with a surveillance inspection. When this repeated initial inspection and surveillance inspection also results in a major non-conformance then the products are considered as no longer conforming to this European Standard.

6 Marking and/or labelling

6.1 General

All voluntary marking and/or labelling should comply with [A2] D.3 [A2].

Care shall be taken to ensure that any voluntary marking and/or labelling does not cause confusion with respect to the mandatory requirements.

NOTE All marking and/or labelling of product to demonstrate compliance with the regulatory requirement is detailed in Annex ZA.

6.2 Product marking

There is no requirement to mark insulating glass units.

6.3 Product characteristics

The manufacturer or his agent shall organise a system of references that allows for the following:

— the identification of exactly which characteristics have to be assessed (see 4.3.2);

— those characteristics that will be assessed;

— the values, classes, categories, etc. that have been determined for those characteristics.

This system shall be documented as part of the evaluation of conformity.

6.4 “Characteristics/performance identification paper”

The manufacturer shall prepare a “characteristics/performance identification paper” based on the information collected on the product characteristics (see 6.3). This document shall be part of the manufacturers technical file and is the basis for the accompanying information as required for regulator purposes.

The "characteristics/performance identification paper" can be a catalogue in any media format (paper, disk, website, etc.), always identifiable by the reference that accompanies the marking with the product. The catalogue shall contain the values or classes of the characteristics for which a performance is declared. If no performance is declared, an indication of no performance determined (NPD) shall be made.

NOTE 1 The conditions of use of NPD are given in Annex ZA.

NOTE 2 The catalogue should not contain any information other than that relevant to the “characteristics/performance identification paper”.

Annex A
(normative)

A2 Rules for the use of 'other party ITT results'

A.1 General

An IGU manufacturer may use ITT results obtained by a third party, e.g. other manufacturer, system developer, etc., to justify their conformity with this European Standard, i.e. EN 1279-5:2005, 5.2.2, for a product manufactured to the same design. This data is referred to as 'other party ITT results'. However, to rely on 'other party ITT results' there needs to be in place appropriate agreements[2],[3] between the parties.

A.2 Terms and definitions

A.2.1
same design
insulating glass unit that conforms to the 'System Description' of the manufacturer that holds the ITT report

A.2.2
product characteristics
characteristics according to 4.3.2.1 to 4.3.2.13 that are specific to the unit 'System Description', i.e. safety in case of fire – fire resistance, direct airborne sound reductions, etc.

A.3 Role of the manufacturer supplying the 'other party ITT results'

The manufacturer shall undertake, via a specific agreement, to supply the following:

1) a 'System Description' that details the insulating glass unit;

2) details of the essential characteristics the insulating glass unit is expected to comply with;

3) reports of Initial Type Testing to EN 1279-2 and if relevant EN 1279-3 on units representative of the 'System Description';

NOTE The testing being undertaken by a Notified Body.

4) test reports to EN 1279-4 covering the applicable components as described in the 'System Description';

5) fully documented factory production control system in accordance with EN 1279-6 specific to the 'System Description' and directly related to the production facility that is being operated;

6) details of all components and constituents necessary to produce an insulating glass unit to the 'System Description';

7) for the manufacturer requesting the use of 'other party ITT results', the appropriate procedures as detailed above shall be verified.

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[2] The formulation of such an agreement can be done by licence, contract, or any other type of written consent.

[3] Bodies entering such agreements could be 'mutually beneficial marketing organisations/clubs'

A.4 Role of the manufacturer using the 'other party ITT results'

The manufacturer shall, subject to the specific agreement, undertake the following:

1) manufacture insulating glass units in accordance with the following:
    a. the given 'System Description';
    b. using the specified components and constituents;
    c. operating the given Factory Production Control procedure;
2) only claim essential characteristics as per the agreement;
3) place the product on the market under it's own declaration of conformity and be responsible for any problem with the product;
4) maintains a copy of the ITT report complying with the following requirements that also contains the information needed for verifying that the insulating glass unit is manufactured according to the agreement:
    a. the results of each test, independent of whether this test is part of the initial type test or audit testing by the manufacturer or a third party need to be recorded in a *"test report"*. The test report should at least include the following information:
        – manufacturer and manufacturing plant;
        – identification of the construction product in accordance with this standard;
        – information about:
            — sampling;
            — date of testing;
            — involved personnel;
            — applied testing methods according to this standard;
            — identification of the organisation and personnel executing the test;
            — place and date;
            — the results of the test, including analysis of these when relevant;
            — place and date of the delivery of the test report;
            — registration number of the Notified Body (when relevant)or laboratory;
            — signature of the head of the testing laboratory and stamp (when relevant).
        – the test report must comply with the relevant clauses of this standard;
    b. the complete set of test reports will be kept by the manufacturer and be made available to the "relevant bodies";
5) undertake the short climate test as detailed in EN 1279-6:2002 – Annex B.

A.5 Limitations on manufacturer using 'other party ITT results'

If the manufacturer using 'other party ITT results' wishes to make modifications to the 'System Description', i.e. change components, claimed essential characteristics, etc., then the insulating glass unit can no longer be manufactured using 'other party ITT results'. The manufacturer is then responsible for submitting units to ITT. A2

Annex B
(informative)

Use of IGUs when subjected to UV and/or in SSG

B.1 General

The scope of the EN 1279 series of standards does not cover the use of IGUs in these applications. However, IGUs are used in these applications and should be capable of offering the same durability and performance as an IGU used in a frame system.

B.2 System description

The manufacturer should be able to write a system description for this particular end use application.

The description should contain, over and above that required by EN 1279-1, the following information that is specific to this intended end use:

a) design considerations, e.g. resistance against wind, snow, permanent load, and other mechanical, (quasi-)static action;

b) dimensioning of the seal system in accordance with [A1] EN 13022-1 [A1];

c) specification of the ultra-violet resistant/structural sealant in accordance with [A1] EN 15434 [A1];

d) specific factory production control requirements over and above those in EN 1279-6.

B.3 Testing

The durability of the insulating glass unit design should be determined by testing in accordance with EN 1279-2 and EN 1279-3. The performance of the ultra-violet resistant/structural sealant should be checked in accordance with EN 1279-4 and [A1] EN 13022-1 [A1].

B.4 Evaluation of conformity

This should be in accordance with this European Standard taking account of the requirements for factory production control from EN 1279-6 and the system description.

B.5 Marking

Insulating glass units for this specific end use should be marked as follows:

Name or trade mark of the manufacturer;

EN 1279;

Special end use – UV and/or structural [as appropriate].

B.6 Regulatory marking

An example of a CE Marking label is shown as Figure ZA.2.

Annex C
(informative)

Installation of the insulating glass units

C.1 General

In order to satisfy the relevant aspects of the performances related to health, safety and energy saving during an economically reasonable working life as it is aimed by the scope of this European Standard, it is recommended that the subclauses below relating to glazing and installation are followed.

C.2 Appropriate supports

Within this European Standard an appropriate support is understood as a support where:

a) the sides of the insulating glass unit are covered by fixing beads or some other part of the support, and

b) entrapment of stationary water, long term condensation and/or enhanced water vapour pressure against the seal of the insulating glass is prevented in order to avoid chemical and/or physical attack on the components of the insulating glass and to avoid excessive water vapour penetration into the insulating glass, and

c) showing a sufficient stiffness to limit the edge deflection of the insulating glass unit under loads, such as wind and snow, to avoid reduction of service life, e.g. due to loss of adhesion. A means of obtaining a recommended minimum support stiffness is to consider when the support either over the height *H* or over the width *B* of the glazing together with an infill of low edge rigidity, e.g. a single glass, exhibits a deflection of *H*/200 or less, and *B*/200 or less, and a maximum of 12 mm for either when exposed to design loads, either as single load or as combined load.

C.3 Installation and glazing conditions

C.3.1 General

Depending on materials and devices used for installation and glazing, and depending on the system of insulating glass unit, the installation conditions may vary.

In the subclauses below, a number of general glazing and installation elements are summed up.

a) Glazing and installation conditions are listed in prEN 12448 and in prEN ISO 14439.

b) The insulating glass unit edge taking the load should be flush.

c) For particular glazing and installation conditions in the case of

- a specific system of insulating glass unit, or
- a specific intended use such as explosion resistance glass, anti bullet glass, fire resistance glass etc.

Reference should be made to the non-confidential part of the system description of the insulating glass unit.

C.3.2 Compatibility

Glazing materials should be compatible with the insulating glass materials and components in such a way that the characteristics defined in this European Standard are not affected.

C.3.3 Protection of the edge seal against ultraviolet radiation

Protection against ultraviolet radiation is achieved by covering the edge seal.

NOTE The use of an ultra-violet resistant sealant in accordance with ▌A1⟩ EN 15434 ⟨A1▌ could also be considered.

C.3.4 Pressure limits on glass and prevention of frictional movements

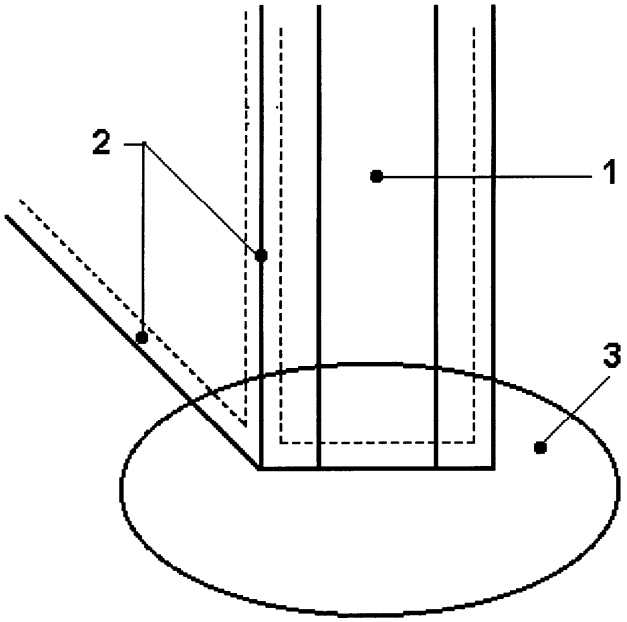
The pressures on glass due to the means of mechanical retention, e.g. beads and elastic profiles, and the means of adjustment, e.g. setting blocks, location blocks, and distance pieces should be as uniform as possible. Risks can be reduced by limiting the hardness of those means which are in contact with the glass.

When pressure is built up, it should not act near the intersection of the glass face and the cut edge of the glass. See prEN 12488 and Figure ▌A2⟩ C.1 ⟨A2▌. When pressure in the vicinity of the intersection is unavoidable, no frictional movement between glass and the means of adjustment or retention should occur.

No pressure should be built up on the glass on or near the corner. Means of adjustment subject to increased pressure such as setting blocks should be in accordance with prEN 12488 and prEN ISO 14439. Means of adjustment subject to low pressure such as a continuous strip under the cut edge of the glass, may be taken to the corner, but the corner itself should be free of pressure. No frictional movement between a corner and any means of adjustment or retention should occur.

C.3.5 Prevention of contact of glass with support

All contact between the insulating glass unit and those rigid parts of the support that could cause high local pressures should be prevented.



Key

1 Insulating glass unit
2 Intersection area
3 Corner area

Figure C.1 – Illustration of location of intersection areas and corner area

There should be no frictional movements in these areas.

There should be no pressure in the corner area.

Annex D
(informative)

Provisions for voluntary involvement of third party(ies)

D.1 General

A manufacturer may employ third party(ies) for conformity assessment, which may involve a combination of initial type testing, inspection of factory production control, continuous surveillance and auditing of the product. The results of the conformity assessment may be used by the bodies acting for regulators in carrying out their assigned tasks.

D.2 Voluntary tasks for third parties

A third party may be voluntarily contracted to perform the initial type testing, inspection of factory production control, continuous surveillance and auditing of the product.

Where a third party is voluntarily involved in the evaluation of conformity of the insulating glass units covered by this document then the assessment should be in accordance with Clause 5, Evaluation of Conformity in this European Standard.

A manufacturer may also voluntarily involve a third party in the control of characteristics, e.g. visual aspects, colour, etc., that are over and above the characteristics required for regulatory purposes.

D.3 Marking and labelling

The format of the label and the position should be agreed between the body involved and the manufacturer.

All marks and/or labels of a voluntary nature should be so affixed as not to be confused with those marks and/or labels that are required for regulatory purposes.

In order to prevent confusion with any regulatory marking and/or labelling then any marking and/or labelling associated with the involvement of third party (ies) on a voluntary basis should be accompanied with the following warning: "This marking/labelling has no relationship with any product characteristic covered by any regulatory marking and/or labelling".

Annex ZA
(informative)

Clauses of this European Standard addressing the provisions of EU Construction Products Directive

ZA.1 Scope and relevant characteristics

This European Standard has been prepared under a mandate M/135 “Flat glass, profiled glass and glass block products” given to CEN by the European Commission and the European Free Trade Association.

The clauses of this European Standard shown in this annex meet the requirements of mandate M/135 given under the EU Construction Products Directive (89/106/EEC).

Compliance with these clauses confers a presumption of fitness of the insulating glass units characteristics covered by this annex for the intended uses herein; reference should be made to the information accompanying the CE marking.

WARNING: Other requirements and other EU Directives, not affecting the fitness for intended uses, can be applicable to the insulating glass units falling within the scope of this European Standard.

NOTE 1 In addition to any specific clauses relating to dangerous substances contained in this standard, there may be other requirements applicable to products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.

NOTE 2 An informative database of European and national provisions on dangerous substances is available at the Construction web site on EUROPA (accessed through [A2] http://ec.europa.eu/enterprise/construction/internal/dangsub/dangmain_en.htm [A2]).

This annex has the same scope as Clause 1 of this standard with regard to the products covered. It establishes the conditions for the CE marking of insulating glass units intended for the use indicated below and shows the relevant clauses applicable (see Table ZA.1).

Construction Product: Insulating glass units

Intended uses: In buildings and construction works

The requirement on a certain characteristic is not applicable in those Member States where there are no regulatory requirements on that characteristic for the intended end use of the product. In this case, manufacturers placing their products on the market of these Member States are not obliged to determine nor declare the performance of their products with regard to this characteristic and the option “No performance determined” (NPD) in the information accompanying the CE marking (see ZA.3) may be used. The NPD option may not be used, however, where the characteristic is subject to a threshold level.

Table ZA.1 – Relevant clauses for Insulating glass units and intended use in buildings and construction works

Product: Insulating glass units as covered under the scope of this standard **Intended use**: **In buildings and construction works**			
Essential Characteristics	Requirements in the EN 1279-5	Mandated Levels and/or classes	Notes
Safety in the case of fire –			
Resistance to fire (for glass for use in a glazed assembly intended specifically for fire resistance)	4.2, 4.3.1 and 4.3.2.2	Any	Minutes
Reaction to fire	4.2, 4.3.1 and 4.3.2.3	All	Euroclasses
External fire performance (for roof coverings only)	4.2, 4.3.1 and 4.3.2.4	All	Euroclasses
Safety in Use –			
Bullet resistance: Shatter properties and resistance to attack	4.2, 4.3.1 and 4.3.2.5	-	Classes of convenience
Explosion resistance: Impact behaviour and resistance to attack	4.2, 4.3.1 and 4.3.2.6	-	Classes of convenience
Burglar resistance: Shatter properties and resistance to attack	4.2, 4.3.1 and 4.3.2.7	-	Classes of convenience
Pendulum body impact resistance: Shatter properties(safe breakability) and resistance to impact	4.2, 4.3.1 and 4.3.2.8	-	Classes of convenience
Mechanical resistance: Resistance against sudden temperature changes and temperature differentials	4.2, 4.3.1 and 4.3.2.9	-	K and/or °C
Mechanical resistance: Resistance against wind, snow, permanent and imposed load and/or imposed loads of the glass unit and edge seal when required	4.2, 4.3.1 and 4.3.2.10	-	mm
Protection against noise:-Direct airborne sound reduction	4.2, 4.3.1 and 4.3.2.11	-	dB

Table ZA.1 *(concluded)*

Energy conservation and heat retention:			
Thermal properties	4.2, 4.3.1 and 4.3.2.12	-	W/(m².K)
Radiation properties:			
- light transmittance and reflectance	4.2, 4.3.1 and 4.3.2.13	-	Fractions or %
- solar energy characteristics	4.2, 4.3.1 and 4.3.2.14	-	Fractions or %

ZA.2 Procedure(s) for the attestation of conformity of Insulating glass units

ZA.2.1 System(s) of attestation of conformity

The systems of conformity for insulating glass units indicated in Table ZA.1, are in accordance with the Decision of the Commission 2000/245/EC of 2000-02-02, amended by 01/296/EC and as given in Annex III of the mandate for "Flat glass, profiled glass and glass block products", is shown in Table ZA.2 for the indicated intended use(s) and relevant level(s) or classes:

Table ZA.2 – System(s) of attestation of conformity

Product(s)	Intended use(s)	Level(s) or class(es)	Attestation of conformity system(s)
Insulating glass units	For used in a glazed assembly intended specifically to provide fire resistance	Any	1
	For uses subject to reaction to fire regulations	Euroclasses A1, A2, B, C, D, E --- Euroclasses A1*, F	3 --- 4
	For uses subject to external fire performance regulations	Products requiring testing --- Products "deemed to satisfy" without testing	3 --- 4
	For use as anti-bullet, or anti-explosion glazing --- For other uses liable to present "safety-in-use" risks and subject to such regulations	- --- -	1 --- 3
	For uses relating to energy conservation and/or noise reduction	-	3
	For uses other than those specified above	-	4
System 1: see Directive 89/106/EEC (CPD) Annex III.2.(i), without audit-testing of samples. System 3: see Directive 89/106/EEC (CPD) Annex III.2.(ii), Second possibility. System 4: see Directive 89/106/EEC (CPD) Annex III.2.(ii), Third possibility			
* Products/materials that do not require to be tested for reaction to fire (e.g. Products/materials of Classes A1 according to Commission Decision 96/603/EC, as amended 2000/605/EC).			

The attestation of conformity of the insulating glass units in Tables ZA.1 shall be based on the evaluation of conformity procedures indicated in Tables ZA.3.1 to ZA.3.3 resulting from the application of the clauses of this or other European Standard indicated therein.

Where more than one table applies for the product, i.e. because its intended use makes different characteristics relevant, Table ZA.3.1 has to be read in conjunction with subsequent tables in order to determine which characteristics assigned by the manufacturer in Table ZA.3.1 are type tested by a notified test lab (system 3) and which by the manufacturer (system 4).

Table ZA.3.1 – Assignment of evaluation of conformity tasks for insulating glass units under system 1

Tasks		Content of the task	Evaluation of conformity clauses to apply
Tasks for the manufacturer	Factory production control (F.P.C.)	Parameters related to all relevant characteristics of Table ZA.1	5.3
	Further testing of samples taken at factory	All relevant characteristics of Table ZA.1	EN 1279-6:2002, Annex A
	Initial type testing	All relevant characteristics of Table ZA.1, except: - resistance to fire; - anti-bullet; - anti-explosion	5.2
Tasks for the notified body	Initial type testing	- Resistance to fire; - Anti-bullet; - Anti-explosion	5.2
	Initial inspection of factory and F.P.C.	Parameters related to all characteristics of Table ZA.1 relevant for the intended use in particular: - resistance to fire; - anti-bullet; - anti-explosion	5.4
	Continuous surveillance, assessment and approval of F.P.C.	Parameters related to all relevant characteristics of Table ZA.1, in particular: - resistance to fire; - anti-bullet; - anti-explosion	5.5

Table ZA.3.2 – Assignment of evaluation of conformity tasks for units under system 3

Tasks		Content of the task	Evaluation of conformity clauses to apply
Tasks for the manufacturer	Factory production control (F.P.C.)	Parameters related to all relevant characteristics of Table ZA.1	5.3
	Initial type testing	All other relevant characteristics of Table ZA.1 other than those shown below	5.2 [A2] and A.4.4 for other party ITT results [A2]
Tasks for the [A2] notified test laboratory [A2]	Initial type testing	Reaction to fire (Classes A1, A2, B, C, D, E) External fire performance Burglar resistance Pendulum body impact resistance Direct airborne sound insulation Thermal properties Radiation properties: – light transmittance and reflection – solar energy characteristics	5.2 [A2] and A.4.4 for other party ITT results [A2]

Table ZA.3.3 – Assignment of evaluation of conformity tasks for Insulating glass units under system 4

Tasks		Content of the task	Evaluation of conformity clauses to apply
Tasks for the manufacturer	Factory production control (F.P.C.)	Parameters related to all relevant characteristics of Table ZA.1	5.3
	Initial type testing	All relevant characteristics of Table ZA.1	5.2

ZA.2.2 EC Certificate and Declaration of conformity

In case of products with system 1: When compliance with the conditions of this Annex is achieved, the certification body shall draw up a certificate of conformity (EC Certificate of conformity), which entitles the manufacturer to affix the CE marking. This certificate shall include:

— name, address and identification number of the certification body;

— name and address of the manufacturer, or his authorised representative established in the EEA, and place of production;

— description of the product (type, identification, use, …);

— provisions to which the product conforms (i.e. Annex ZA of this EN 1279-5);

— particular conditions applicable to the use of the product (e.g. provisions for use under certain conditions, etc.);

— the number of the certificate;

— conditions and period of validity of the certificate, where applicable;

— name of, and position held by, the person empowered to sign the certificate.

In addition, the manufacturer shall draw up a declaration of conformity (EC Declaration of conformity) including the following:

— name and address of the manufacturer, or his authorised representative established in the EEA;

— name and address of the certification body;

— description of the product (type, identification, use, ...), and a copy of the information accompanying the CE marking;

— provisions to which the product conforms (i.e. Annex ZA of this EN 1279-5);

— particular conditions applicable to the use of the product (e.g. provisions for use under certain conditions, etc.);

— number of the accompanying EC Certificate of conformity;

— name of, and position held by, the person empowered to sign the declaration on behalf of the manufacturer or of his authorised representative.

In case of products under system 3: When compliance with the conditions of this Annex is achieved, the manufacturer or his agent established in the EEA shall prepare and retain a declaration of conformity (EC Declaration of conformity), which entitles the manufacturer to affix the CE marking. This declaration shall include:

— name and address of the manufacturer, or his authorised representative established in the EEA, and place of production;

— description of the product (type, identification, use,...), and a copy of the information accompanying the CE marking;

— provisions to which the product conforms (i.e. Annex ZA of this EN 1279-5);

— particular conditions applicable to the use of the product, (e.g. provisions for use under certain conditions, etc);

— name and address of the notified laboratory(ies);

— name of, and position held by, the person empowered to sign the declaration on behalf of the manufacturer or his authorised representative.

In case of products under system 4: When compliance with this Annex is achieved, the manufacturer or his agent established in the EEA shall prepare and retain a declaration of conformity (EC Declaration of conformity), which entitles the manufacturer to affix the CE marking. This declaration shall include:

— name and address of the manufacturer, or his authorised representative established in the EEA, and place of production;

— description of the product (type, identification, use,...), and a copy of the information accompanying the CE marking;

— provisions to which the product conforms (i.e. Annex ZA of this EN 1279-5);

— particular conditions applicable to the use of the product (e.g. provisions for use under certain conditions, etc.);

— name of, and position held by, the person empowered to sign the declaration on behalf of the manufacturer or of his authorised representative.

NOTE Duplication of information between the declaration and certificate should be avoided. To avoid duplication of information, cross-reference between documents may be made when one contains more information than the other.

The above mentioned declaration and certificate shall be presented in the official language or languages of the Member State in which the product is to be used.

ZA.3 CE marking and labelling

The manufacturer or his authorised representative established within the EEA is responsible for the affixing of the CE marking. The CE marking symbol to affix shall be in accordance with Directive 93/68/EC and shall be shown on the Insulating glass units (or when not possible it may be on the accompanying label, the packaging or on the accompanying commercial documents e.g. a delivery note). The following information shall accompany the CE marking symbol:

— identification number of the certification body (only for products under systems 1);

— name or identifying mark and registered address of the producer;

— the last two digits of the year in which the marking is affixed;

— number of the EC Certificate of conformity or factory production control certificate (if relevant);

— reference to this European Standard;

— description of the product: generic name, material, dimensions, … and intended use;

— information on those relevant essential characteristics listed in Table ZA.1 which are to be declared presented as:

  — declared values and, where relevant, level or class (including “pass” for pass/fail requirements, where necessary) to declare for each essential characteristic as indicated in "Notes" in Table ZA.1;

  — as an alternative, standard designation(s) alone or in combination with declared values as above, and;

  — “No performance determined” for characteristics where this is relevant.

The “No performance determined” (NPD) option may not be used where the characteristic is subject to a threshold level. Otherwise, the NPD option may be used when and where the characteristic, for a given intended use, is not subject to regulatory requirements in the Member State of destination.

Figures ZA.1 and ZA.2 give an example of the information to be given on the product, label, packaging and/or commercial documents.

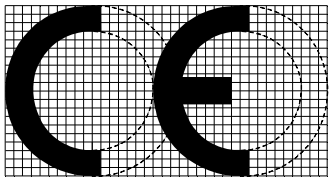
	*CE conformity marking, consisting of the "CE"-symbol given in directive 93/68/EEC.*
AnyCo Ltd, PO Box 21, B-1050	*Name or identifying mark and registered address of the producer*
05	*Last two digits of the year in which the marking was affixed*
EN 1279-5	*No. of European Standard*
Insulating glass unit, intended to be used in buildings and construction works	*Description of product*
Characteristics	*and*
	information on regulated characteristics
Resistance to fire **npd**	
Reaction to fire **A1**	
External fire performance **npd**	
Bullet resistance **npd**	
Explosion resistance **npd**	
Burglar resistance **npd**	
Pendulum body impact resistance **npd**	
Resistance against sudden temperature changes and temperature differentials **100K**	
Wind, snow, permanent and imposed load resistance **4 mm**	
Direct airborne sound insulation **26 dB**	
Thermal properties **1,4 W/(m^{2}K)**	
Radiation properties:	
light transmission and reflection **0,88/0,10**	
solar energy characteristics **0,87/0,11**	

Figure ZA.1 - Example CE marking information

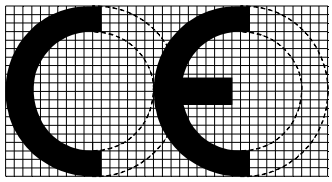
	*CE conformity marking, consisting of the "CE"-symbol given in directive 93/68/EEC.*
AnyCo Ltd, PO Box 21, B-1050	*Name or identifying mark and registered address of the producer*
05	*Last two digits of the year in which the marking was affixed*
EN 1279-5 and special end use – UV and/or structural [as appropriate]	*No. of European Standard*
Insulating glass unit, intended to be used in buildings and construction works	*Description of product and information on regulated characteristics*
Characteristics	
Resistance to fire — **npd**	
Reaction to fire — **A1**	
External fire performance — **npd**	
Bullet resistance — **npd**	
Explosion resistance — **npd**	
Burglar resistance — **npd**	
Pendulum body impact resistance — **npd**	
Resistance against sudden temperature changes and temperature differentials — **100K**	
Wind, snow, permanent and imposed load resistance — **4 mm and class X**	
Direct airborne sound insulation — **26 dB**	
Thermal properties — **1,4 W/(m^2K)**	
Radiation properties:	
light transmission and reflection — **0,88/0,10**	
solar energy characteristics — **0,87/0,11**	

Figure ZA.2 - Example CE marking information

In addition to any specific information relating to dangerous substances shown above, the product should also be accompanied, when and where required and in the appropriate form, by documentation listing any other legislation on dangerous substances for which compliance is claimed, together with any information required by that legislation.

NOTE European legislation without national derogations need not be mentioned.

Bibliography

[1] EN 357, *Glass in building — Fire resistant glazed elements with transparent or translucent glass products — Classification of fire resistance*

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