



SLOVENSKI STANDARD
SIST EN 12337-1:2001
01-september-2001

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Glass in building - Chemically strengthened soda lime silicate glass - Part 1: Definition and description

Glas im Bauwesen - Chemisch vorgespanntes Kalknatronglas - Teil 1: Definition und Beschreibung

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Verre dans la construction - Verre de silicate sodocalcique renforcé chimiquement - Partie 1: Définition et description

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Ta slovenski standard je istoveten z: EN 12337-1:2000

ICS:

81.040.20 Steklo v gradbeništvu Glass in building

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en

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 12337-1

June 2000

ICS 81.040.20

English version

Glass in building - Chemically strengthened soda lime silicate glass - Part 1: Definition and description

Verre dans la construction - Verre de silicate sodo-calciue renforcé chimiquement - Partie 1: Définition et description

Glas im Bauwesen - Chemisch vorgespanntes Kalknatronglas - Teil 1: Definition und Beschreibung

This European Standard was approved by CEN on 6 May 1999.

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.

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

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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

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Foreword

This European Standard 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 2000, and conflicting national standards shall be withdrawn at the latest by December 2000.

CEN/TC129/WG2 prepared a working draft.

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

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Introduction

Chemically strengthened soda lime silicate glass has a higher resistance to thermal stress and an enhanced mechanical strength when compared to annealed glass.

NOTE 1: CEN/TC129/WG8 is producing standards for the determination of the design strength of glass and is preparing a design method.

NOTE 2: CEN/TC129/WG2 is preparing a standard for production control and evaluation of conformity.

1 Scope

This European Standard specifies tolerances, flatness, edgework, fragmentation and physical and mechanical characteristics of flat chemically strengthened soda lime silicate glass for use in buildings.

Information on curved or profiled chemically strengthened soda lime silicate glass is given in annex B, but this product does not form part of this standard.

Chemically strengthened soda lime silicate glass, defined hereafter, can be incorporated into assemblies, e.g. laminated glass or insulating units, or undergo an additional treatment, e.g. coating, and will therefore also comply with the requirements of the appropriate finished product standard.

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 be revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to 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 silicate glass products - Part 2: Float 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 673	Glass in building - Determination of thermal transmittance (U value) - Calculation Method
EN 1288-3	Glass in building - Determination of bending strength of glass - Part 3: Test with specimen supported at two points (four point bending)

3 Definitions

For the purposes of this European Standard the following definitions apply:-

3.1 chemically strengthened soda lime silicate glass:

Glass made by subjecting a soda-lime silicate glass to an ion exchange process in order to give it increased resistance to mechanical and thermal stress. The small diameter ions in the glass surface and edges are replaced with larger diameter ones, which results in the glass surface and edges being placed into compression.

3.2 flat chemically strengthened soda lime silicate glass:

A nominally flat piece of glass which has been strengthened. No specific profile results from the manufacturing process.

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4 Glass products

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Chemically strengthened soda lime silicate glass products are made from a monolithic glass corresponding to one of the following standards:-

- EN 572-1 for definitions and general physical and mechanical properties.
- EN 572-2 for float glass
- EN 572-4 for drawn sheet glass
- EN 572-5 for patterned glass

Other soda lime silicate glass products conforming to the chemical composition given in EN 572-1 may also be used to manufacture chemically strengthened soda lime silicate glass.

5 Fracture characteristics

When chemically strengthened soda lime silicate glass is fractured it breaks like annealed glass.

6 Dimensions and tolerances

6.1 Thickness

The nominal thicknesses and thickness tolerances are those given in the relevant product standard (see clause 4), which are reproduced in table 1. There are a number of specific thicknesses, not included in EN 572-1, EN 572-2, EN 572-4 and EN 572-5 which are used for chemical strengthening and some of these are also included in table 1. Other thicknesses can be available and the manufacturer should be consulted about the tolerances.

The thickness of a pane shall be determined as for the basic product. The measurement shall be taken at the centres of the 4 sides.

Table 1 : Nominal thicknesses and thickness tolerances

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Dimensions in millimetres

Nominal thickness <i>d</i>	Tolerances for glass type		
	Drawn sheet	Patterned	Float
1	not manufactured	not manufactured	± 0,1
1,3	" "	" "	± 0,1
1,6	" "	" "	± 0,1
2	± 0,2	" "	± 0,2
3	± 0,2	± 0,5	± 0,2
4	± 0,2	± 0,5	± 0,2
5	± 0,3	± 0,5	± 0,2
6	± 0,3	± 0,5	± 0,2
8	± 0,4	± 0,8	± 0,3
10	± 0,5	± 1,0	± 0,3
12	± 0,6	not manufactured	± 0,3

6.2 Width and length (sizes)

6.2.1 General

When chemically strengthened soda lime silicate glass dimensions are quoted for rectangular panes the first dimension shall be the width, B , and the second dimension the length, H , as shown in figure 1. It shall be made clear which dimension is the width, B , and which is the length, H , when related to its installed position.

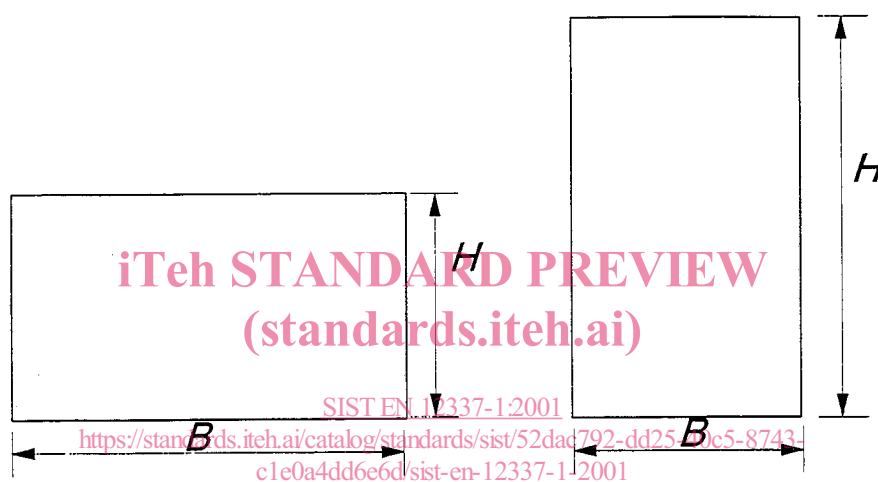


Figure 1 : Examples of width, B , and length, H , relative to the pane shape

NOTE. For chemically strengthened soda lime silicate glass manufactured from patterned glass, the direction of the pattern should be specified relative to one of the dimensions.

6.2.2 Maximum and minimum sizes

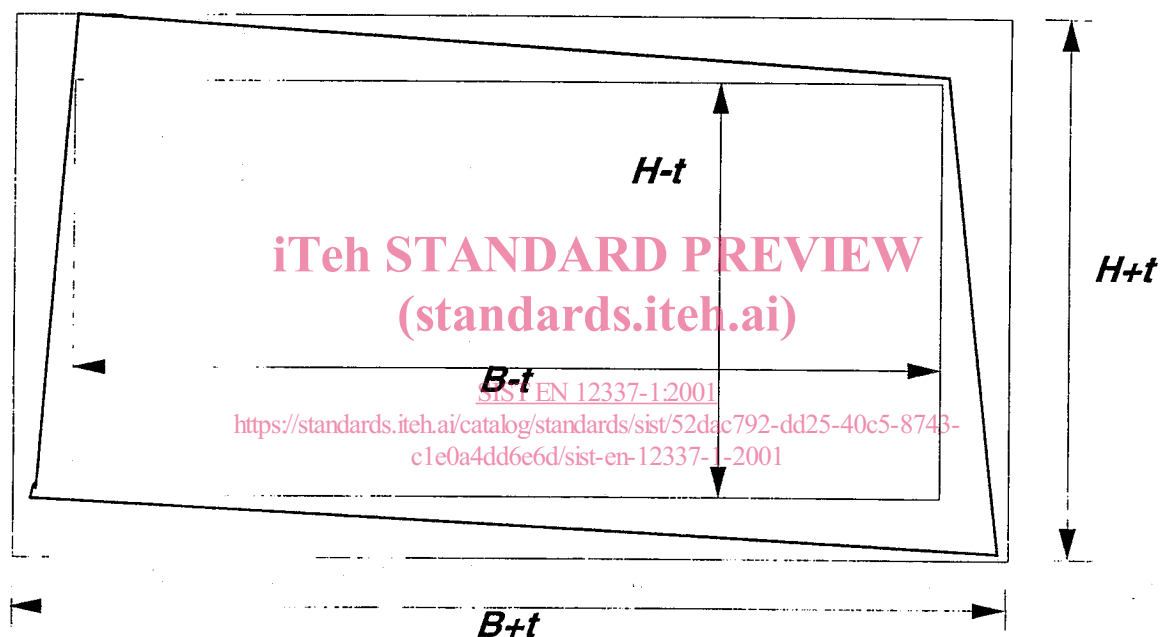
For maximum and minimum sizes, the manufacturer should be consulted.

6.2.3 Nominal dimensions, tolerances and squareness

The nominal dimensions for width and length being given, the finished pane shall not be larger than a prescribed rectangle resulting from the nominal dimensions increased by the tolerance, t , or smaller than a prescribed rectangle reduced by the tolerance, t . The sides of the prescribed rectangles are parallel to one another and these rectangles shall have a common centre (see figure 2). The limits of squareness are also the prescribed rectangles. Tolerances are given in table 2.

Table 2 : Tolerances on width, B , and length, H

Nominal dimension of side, B or H	Dimensions in millimetres	
	Tolerance, t	
≤ 2000	$\pm 2,5$	
$2000 < H \text{ or } B \leq 3000$	$\pm 3,0$	
>3000	$\pm 4,0$	
NOTE : Each side, B or H , shall be considered separately.		

**Figure 2 : Tolerance limits for dimensions of rectangular panes**

6.3 Flatness

6.3.1 General

By the very nature of the chemical strengthening process, it is not possible to obtain a product as flat as annealed glass. The difference depends on the thickness, the dimensions and the ratio between the dimensions. Therefore a distortion known as overall bow can occur (see figure 3).

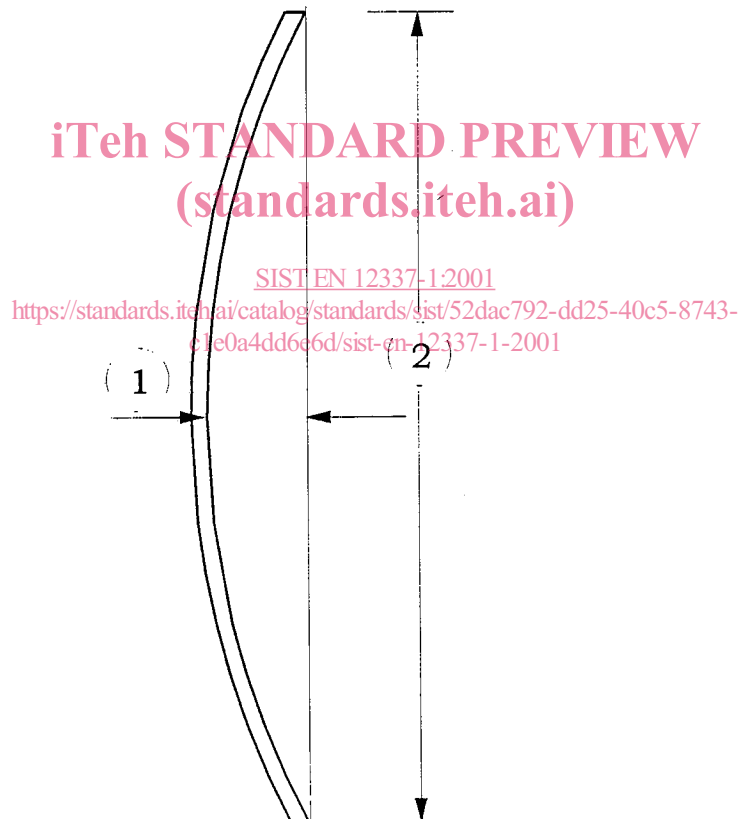
6.3.2 Measurement of overall bow

The pane of glass shall be placed in a vertical position and supported on its longer side by two load bearing blocks at the quarter points (see figure 4).

The deformation shall be measured along the edges of the glass and along the diagonals, as the maximum distance between a straight metal ruler, or a stretched wire, and the concave surface of the glass (see figure 3).

The value for the bow is then expressed as the deformation, in millimetres, divided by the measured length of the edge of the glass, or diagonal, in millimetres, as appropriate.

The measurement shall be carried out at room temperature.



- 1 - deformation for calculating overall bow
- 2 - B , or H , or diagonal length

NOTE: Overall bow can, in general, be accommodated by the framing system.

Figure 3 : Representation of overall bow