



SLOVENSKI STANDARD

SIST EN 15683-1:2013

01-november-2013

Steklo v gradbeništvu - Toplotno kaljeno natrij-kalcijevo silikatno utorjeno varnostno steklo - 1. del: Definicije in opis

Glass in building - Thermally toughened soda lime silicate channel shaped safety glass - Part 1: Definition and description

Glas im Bauwesen - Thermisch vorgespanntes Kalknatron-Profilbau-Sicherheitsglas - Teil 1: Definition und Beschreibung

Verre dans la construction - Verre de silicate sodocalcique profilé de sécurité trempé thermiquement - Partie 1 : Définition et description

<https://standards.iteh.ai/catalog/standards/sist/6d0f7c78-68e6-4208-8408-391ddad5ba41/sist-en-15683-1-2013>

Ta slovenski standard je istoveten z: EN 15683-1:2013

ICS:

81.040.20 Steklo v gradbeništvu Glass in building

SIST EN 15683-1:2013

en,fr,de

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EUROPEAN STANDARD

EN 15683-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2013

ICS 81.040.20

English Version

Glass in building - Thermally toughened soda lime silicate channel shaped safety glass - Part 1: Definition and description

Verre dans la construction - Verre de silicate sodo-calcique
profilé de sécurité trempé thermiquement - Partie 1 :
Définition et description

Glas im Bauwesen - Thermisch vorgespanntes Kalknatron-
Profilbau-Sicherheitsglas - Teil 1: Definition und
Beschreibung

This European Standard was approved by CEN on 30 May 2013.

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-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 15683-1:2013) 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 January 2014, and conflicting national standards shall be withdrawn at the latest by January 2014.

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 has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

EN 15683 is composed of the following parts:

- EN 15683-1, *Glass in building — Thermally toughened soda lime silicate channel shaped safety glass — Part 1: Definition and description*
- EN 15683-2, *Glass in building — Thermally toughened soda lime silicate channel shaped safety glass — Part 2: Evaluation of conformity/Product standard*

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

Introduction

Thermally toughened soda lime silicate channel shaped safety glass has a safer breakage behaviour when compared with annealed glass.

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1 Scope

This European Standard specifies tolerances, flatness of web and flanges, flange deviation, edgework, fragmentation and physical and mechanical characteristics of monolithic thermally toughened soda lime silicate channel shaped safety glass for use in buildings.

Other requirements, not specified in this document, can apply to thermally toughened soda lime silicate channel shaped safety glass, which undergoes an additional treatment, e.g. coating. The additional requirements are specified in the appropriate product standard EN 15683-2. Thermally toughened soda lime silicate channel shaped safety glass, in this case, does not lose its mechanical or thermal characteristics.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

EN 572-7:2012, *Glass in building — Basic soda lime silicate glass products — Part 7: Wired or unwired channel shaped glass*

EN 1288-4, *Glass in building — Determination of the bending strength of glass — Part 4: Testing of channel shaped glass*

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3 Terms and definitions

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For the purposes of this document, the following terms and definitions apply.

3.1

thermally toughened soda lime silicate channel shaped safety glass

glass within which a permanent surface compressive stress has been induced by a controlled heating and cooling process in order to give it greatly increased resistance to mechanical and thermal stress and prescribed fragmentation characteristics

Note 1 to entry: The mechanical properties, i.e. thermal durability and profile bending strength, and safety properties, i.e. fragmentation characteristics, are generated by the level of surface compression. These properties do not depend on the size of the channel shaped glass.

3.2

enamelled thermally toughened soda lime silicate channel shaped safety glass

thermally toughened soda lime silicate channel shaped safety glass which has a ceramic frit fired into the surface during the toughening process becoming an integral part of the glass after toughening

3.3

horizontal toughening

process in which the glass is supported on horizontal rollers

EN 15683-1:2013 (E)**4 Glass products**

Thermally toughened soda lime silicate channel shaped safety glass shall be made from a monolithic glass generally corresponding to the following standards:

- basic soda lime silicate glass products – unwired channel shaped glass according to EN 572-1 and EN 572-7;
- this may also be coated in accordance with EN 1096-1.

5 Fracture characteristics

In the event of breakage, thermally toughened soda lime silicate channel shaped safety glass fractures into numerous small pieces, the edges of which are generally blunt.

NOTE Fragmentation in service does not always correspond to that described in Clause 8, due to restraint from fixing or due to the cause of fracture.

6 Dimensions and tolerances**6.1 General**

The dimensions of thermally toughened soda lime silicate channel shaped safety glass are shown in Figure 1. These are glass thickness (c), width (B), length (H) and flange height (d).

6.2 Dimensions and dimensional tolerances**6.2.1 Nominal thickness (c) and thickness tolerances**

The nominal thicknesses and thickness tolerances shall be those given in Table 1.

NOTE The tolerances of width, height of flange and thickness are those given in EN 572-7:2012, Table 1. Table 1 of EN 15683-1:2012 was extended by the length H .

The thickness shall be determined as for the basic product.

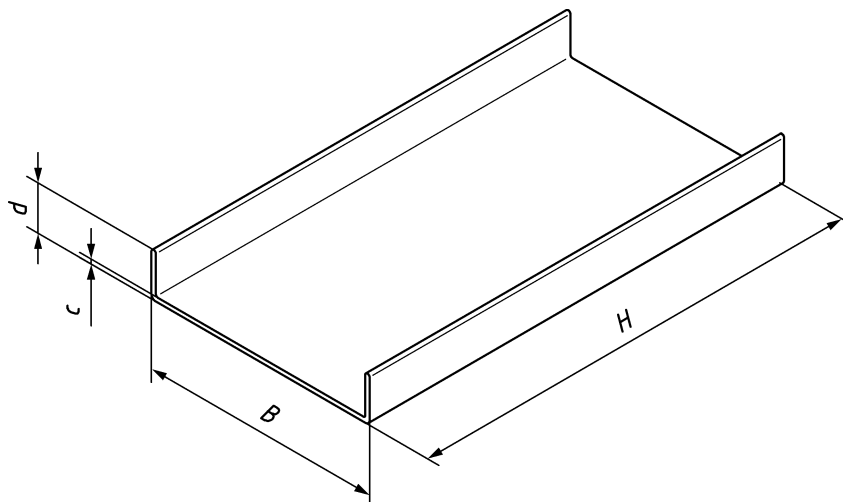
6.2.2 Width, flange height and length (sizes)**6.2.2.1 General**

Thermally toughened soda lime silicate channel shaped safety glass dimensions are quoted as follows:

- the type which defines the width, B , the flange height, d , and the thickness, c ; and
- the length, H .

EXAMPLE 232/41/6 – 4 000.

The type may be given as a code rather than the full specification.

**Key**

H	length, mm
B	width, mm
d	flange height
c	thickness

Figure 1 — Dimensions of a thermally toughened soda lime silicate channel shaped safety glass

6.2.2.2 Maximum and minimum sizes

The range of width, B , is from 232 mm to 498 mm and maximum length is 7 000 mm.

The maximum available length will depend upon the thermal toughening equipment used; contact the manufacturer.

6.2.2.3 Tolerances on dimensions

The tolerances on the dimensions shall be those given in Table 1.

NOTE The tolerances of width, height of flange and thickness are those given in EN 572-7:2012, Table 1. Table 1 of EN 15683-1:2012 was extended by the length H .

Table 1 — Nominal dimensions and dimensional tolerances

Dimensions in millimetres

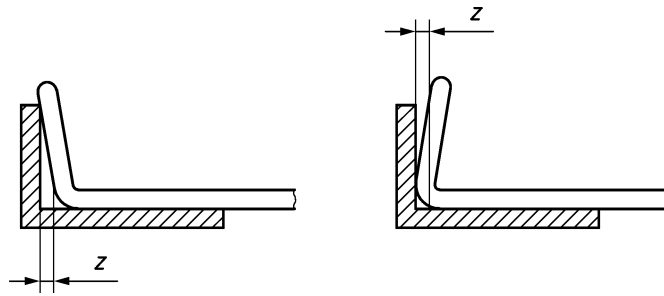
Width B		Height of flange d		Thickness c		Length H	
Nominal	Tolerance	Nominal	Tolerance	Nominal	Tolerance	Nominal	Tolerance
232 to 498	$\pm 2,0$	41	$\pm 1,0$	6	$\pm 0,2$	Up to	$\pm 3,0$
232 to 331	$\pm 2,0$	60	$\pm 1,0$	7	$\pm 0,2$	7 000	

6.3 Shape

6.3.1 Flange deviation

The deviation of the flange, z , from perpendicular to the web is determined with a right angle, as shown in Figure 2.

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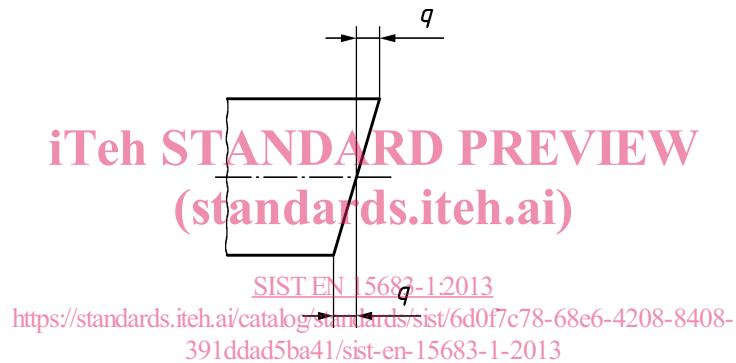


Key
 z flange deviation

Figure 2 — Determination of flange deviation

6.3.2 Squareness of cut, q

The out of squareness of the web and flanges is determined at both cut ends. It is measured relative to a plane perpendicular to the direction of draw of the glass at the intersection of the centre line of the web and of the cut edge (see Figure 3). The deviation of the flange plane is measured.



Key
 q squareness of cut

Figure 3 — Determination of squareness of cut

6.3.3 Tolerances on shape

The tolerance on flange deviation, z , shall not exceed 1,0 mm.

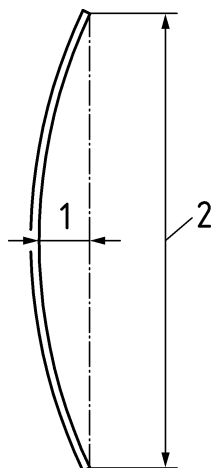
The deviation on squareness of cut, q , shall not exceed 3,0 mm.

6.4 Flatness

6.4.1 General

By the very nature of the toughening process, it is not possible to obtain a product as flat as annealed glass. The difference depends on the nominal thickness, the web and flange dimensions and the length. Therefore, a distortion known as overall bow may occur (see Figure 4).

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

**Key**

- 1 deformation for calculating overall bow
- 2 length H

Figure 4 — Representation of overall bow**6.4.2 Measurement of overall bow**

The pane of glass shall be placed in a horizontal position on its side on a flange supported by two load-bearing blocks at the quarter points (see Figure 5).

The deformation shall be measured along the middle axis of the web between the cut edges of the channel shaped glass as the maximum distance between a straight metal ruler, or a stretched wire, and the concave surface of the channel shaped glass (see Figure 4).

The value for the bow is then expressed as the deformation, in millimetres, divided by the measured length of the channel shaped glass in millimetres.

The measurement shall be carried out at ambient temperature.