

BS EN 572-5:2012



BSI Standards Publication

# Glass in building — Basic soda lime silicate glass products

Part 5: Patterned glass

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**National foreword**

This British Standard is the UK implementation of EN 572-5:2012. It supersedes BS EN 572-5:2004 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/520/1, Basic and transformed glass products.

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

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## Glass in building - Basic soda lime silicate glass products - Part 5: Patterned glass

Verre dans la construction - Produits de base: verre de  
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Glas im Bauwesen - Basiserzeugnisse aus Kalk-  
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## Foreword

This document (EN 572-5:2012) 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of an identical text or by endorsement, at the latest by January 2013, and conflicting national standards shall be withdrawn at the latest by January 2013.

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 supersedes EN 572-5:2004.

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

This edition is a revision of EN 572-5:2004. The main change in this edition is a new method of determination of squareness.

This European Standard “*Glass in building — Basic soda lime silicate glass products*” consists of the following parts:

- Part 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;
- Part 7: Wired or unwired channel shaped glass;
- Part 8: Supplied and final cut sizes;
- Part 9: 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.

## 1 Scope

This European Standard specifies dimensional and minimum quality requirements (in respect of visual and pattern faults) for patterned glass as defined in EN 572-1:2012, for use in building.

This European Standard applies only to patterned glass supplied in rectangular panes and in stock sizes.

EN 572-8 gives information on patterned glass in sizes other than those covered by this European Standard.

## 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 572-1:2012, *Glass in building — Basic soda lime silicate glass products — Part 1: Definitions and general physical and mechanical properties*

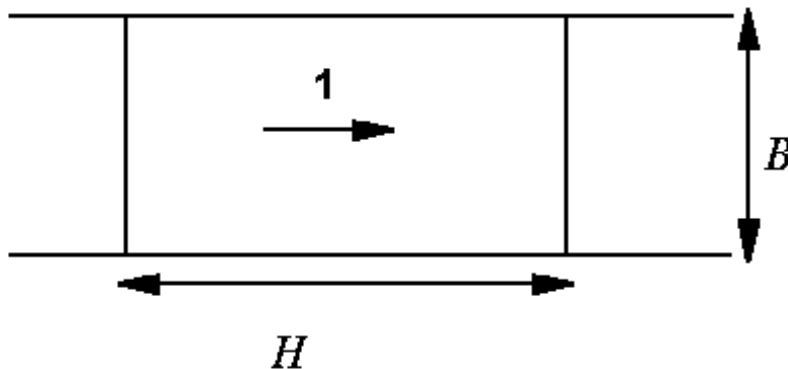
## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 572-1:2012 and the following apply.

### 3.1

#### length, $H$ , and width, $B$

defined with reference to the direction of draw of the glass ribbon as shown in Figure 1



#### Key

1 direction of draw

Figure 1 — Relationship between length, width and direction of draw

### 3.2

#### stock sizes

glass delivered in the following sizes:

- nominal length,  $H$ : 2 100 mm to 4 500 mm;
- nominal width,  $B$ : 1 260 mm to 2 520 mm

Note 1 to entry: The maximum stock sizes available depend on the manufacturer and the pattern.

### 3.3

#### **visual fault**

fault which alters the visual quality of the glass

Note 1 to entry: Visual faults include spot faults, linear/extended faults and pattern faults.

### 3.4

#### **spherical or quasi-spherical spot fault**

spot fault whose larger dimension is less than or equal to twice the smaller dimension

### 3.5

#### **elongated spot fault**

spot fault whose larger dimension is more than twice the smaller dimension

### 3.6

#### **linear/extended fault**

fault which can be on or in the glass, in the form of deposits, marks or scratches which occupy an extended length or area

### 3.7

#### **pattern fault**

deviations of the pattern relative to a reference, e.g. line or straight edge

### 3.8

#### **deviation of the pattern**

deviation,  $x$ , of the pattern

## 4 Dimensional requirements

### 4.1 Thickness

#### 4.1.1 General

The actual thickness shall be the average of four measurements, taken to the nearest 0,01 mm, one taken at the thickest and closest point to the centre of each side. Measurement shall be by means of an instrument of the plate gauge type with a diameter of  $(50 \pm 5)$  mm.

NOTE The mechanical resistance of patterned glass is a function of the pattern as well as the thickness.

#### 4.1.2 Tolerances

The actual thickness rounded to the nearest 0,1 mm shall not vary from the nominal thickness by more than the tolerances shown in Table 1.

**Table 1 — Tolerances on nominal thickness**

Dimensions in millimetres

Nominal thickness	Tolerances
3	± 0,5
4	± 0,5
5	± 0,5
6	± 0,5
8	± 0,8
10	± 1,0
12	± 1,5
14	± 1,5
15	± 1,5
19	± 2,0

## 4.2 Length, width and squareness

The tolerances,  $t$ , on the nominal dimensions length,  $H$ , and width,  $B$ , are dependant on the thickness of the glass and are shown in Table 2.

**Table 2 — Tolerances,  $t$ , on length,  $H$ , and width,  $B$ , according to the nominal thickness of the glass**

Dimensions in millimetres

Nominal thickness	Tolerances, $t$
3	
4	
5	± 3
6	
8	
10	± 4
12	
14	
15	± 5
19	



The limits of squareness are described by the difference between diagonals. Such limits are given in Table 3.

**Table 3 — Limit on the difference between diagonals**

Dimensions in millimetres

Nominal glass thickness, $d$	Limit on the difference between diagonals		
	Stock sizes – Splits		
	$(H, B) \leq 1\ 500$	$1\ 500 < (H, B) \leq 3\ 000$	$(H, B) > 3\ 000$
3, 4, 5, 6	3	4	5
8, 10, 12	4	5	6
14, 15, 19	5	6	8

## 5 Quality requirements

### 5.1 General

One quality level is considered in this European Standard. This is determined by evaluation of the visual faults.

There are three different types of pattern faults considered which may occur simultaneously. They are shown in Figure 2 and are

- a) out of square,
- b) waviness,
- c) bow.

### 5.2 Methods of observation and measurement

#### 5.2.1 Spot and linear/extended faults

The glass pane to be examined is illuminated in conditions approximating to diffuse daylight and is observed in front of a matt grey screen.

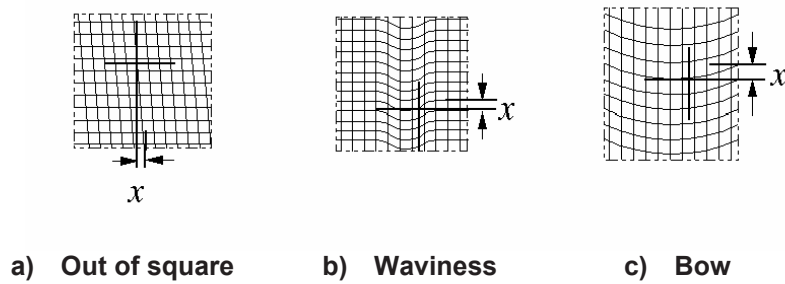
Place the pane of glass to be examined vertically 3 m in front of the parallel to the screen. Arrange the point of observation 1,5 m from the glass, keeping the direction of observation normal to the glass surface.

View the pane of glass, and note the presence of the following visually disturbing faults.

- a) Spot faults: Measure the dimensions of these faults with a micrometer with graduations in tenths of a millimetre. Note the number, dimensions and concentration of the spot faults.
- b) Linear/extended faults: Note the number of these faults.

#### 5.2.2 Pattern faults

A reference, e.g. line or straight edge, is placed on the glass as shown in Figure 2. The deviation,  $x$ , of the pattern in relation to this reference is measured.



NOTE The scale of these drawings has been exaggerated in order to be explicit about the types of deviation.

Figure 2 — Representations of the types of pattern faults

### 5.3 Acceptance levels

#### 5.3.1 Spot faults

Spot faults are categorized and found to be acceptable or not acceptable as follows:

- a) Spherical and quasi-spherical spot faults:
  - 1) If the larger dimension is  $\leq 2,0$  mm, they are acceptable with restriction;
  - 2) If the larger dimension is  $> 2,0$  mm and  $\leq 5,0$  mm, they are acceptable up to 2 in any  $1\text{ m} \times 1\text{ m}$  area;
  - 3) They are not acceptable if the larger dimension is  $> 5,0$  mm.
- b) Elongated spot faults of width  $\leq 2,0$  mm:
  - 1) If their length is  $\leq 4,0$  mm, they are acceptable without restriction;
  - 2) If their length is  $> 4,0$  mm and  $\leq 25,0$  mm, they are acceptable if the sum of the lengths is  $\leq 100$  mm in any  $1\text{ m} \times 1\text{ m}$  area;
  - 3) They are not acceptable if the length is  $> 25,0$  mm.
- c) Elongated spot faults of width  $> 2,0$  mm:
  - 1) If the larger dimension is  $\leq 8,0$  mm, they are acceptable up to 2 in any  $1\text{ m} \times 1\text{ m}$  area;
  - 2) They are not acceptable if the larger dimension is  $> 8,0$  mm.

#### 5.3.2 Linear/extended faults

The number of allowable faults is an average of 0,05 faults in  $20\text{ m}^2$  of glass related to at least 20 t.

#### 5.3.3 Pattern faults

The deviation of the pattern,  $x$ , (see Figure 2) shall not exceed 12 mm per metre.

## 6 Designation

Patterned glass in compliance with this European Standard shall be designated respectively by:

- type,
- reference to this European Standard,
- tint (manufacturer's reference) or clear,
- pattern (manufacturer's reference),
- nominal thickness in mm,
- nominal length,  $H$ , and width,  $B$ , in mm.

EXAMPLE Patterned glass, pattern reference 'PATTERN', clear, thickness 4 mm, length 4,50 m, width 1,60 m, intended for use in buildings, is designated as follows:

Patterned glass - EN 572-5 - clear 'PATTERN', 4 mm, 4 500 mm × 1 600 mm

## Bibliography

- [1] EN 572-8, *Glass in building — Basic soda lime silicate glass products — Part 8: Supplied and final cut sizes*



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