INTERNATIONAL STANDARD

ISO 16293-4

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Glass in building — Basic soda lime silicate glass products —

Part 4: Wired patterned glass

Verre dans la construction — Produits de base: verre de silicate sodo-calcique —
Partie 4: Verre armé

Reference number
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Contents

Page

Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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The committee responsible for this document is ISO/TC 160, *Glass in Building*, Subcommittee SC 1, *Product considerations*.

A list of all parts in the ISO 16293 series can be found on the ISO website.

Glass in building — Basic soda lime silicate glass products —

Part 4: Wired patterned glass

1 Scope

This document specifies dimensional and minimum quality requirements (in respect of visual, pattern and wire faults) for wired patterned glass, as defined in ISO 16293-1, for use in building.

This document applies only to wired patterned glass supplied in rectangular panes, in stock sizes and in final cut sizes.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 16293-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

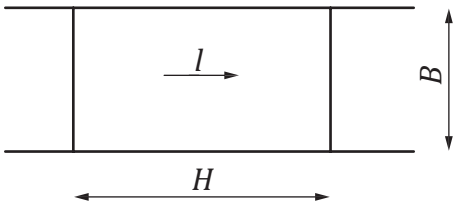
— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
length
H
dimension of the straight edge of the glass parallel to the direction of draw of the glass ribbon

Note 1 to entry: See Figure 1.

[SOURCE: ISO 11485-1:2011, 2.26, modified]



Key

l direction of draw
H length
B width

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

3.2
width
B
dimension of the edge of the glass perpendicular to the direction of the glass ribbon

Note 1 to entry: See Figure 1.

3.3
stock size
glass sizes that are intended to be re-cut to obtain *final cut sizes* (3.4)

3.4
final cut size
pane of glass that has been cut down to the dimensions being required either for installation or processing into a final product, e.g. insulating glass units of those dimensions

Note 1 to entry: The minimum final cut size shall have dimensions *H* or *B* not less than 100 mm and a minimum surface area of not less than 0,05m^2.

3.5
visual fault
fault which alters the visual quality of the glass

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

3.6
spot fault
fault which can be in or on the glass in the form of gaseous inclusion, solid inclusion, mark or deposit of small size

3.7
linear/extended fault
faults which can be on or in the glass, in the form of deposits, marks or scratches which occupy an extended length or area

3.8
pattern fault
deviation of the pattern (3.9) relative to a reference, e.g. line or straight edge

3.9
deviation of the pattern
deviation, *u*, *v* or *w*, of the pattern

3.10
wire fault
deviation of the wire (3.11), penetration of the glass surface by the wire or break in the wire in the body of the glass

3.11
deviation of the wire
deviation, *x*, *y*, *z* of the wire relative to a reference, e.g. line or straight edge

3.12
edge defect
defect which can occur on the edge of a glass sheet in the form of entrant and emergent faults and/or bevels

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, each 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 mm ± 5 mm.

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

4.1.2 Tolerances

All four measurements, 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 — Tolerance on nominal thickness

Dimensions in millimetres

Nominal thickness	Tolerances
6, 6,8	±0,6
7	±0,7
8	±0,8
9	±0,9
10	±0,9

4.2 Length, width and squareness

The tolerances, t, on nominal dimensions length, H, and width, B of stock sizes and final cut size are shown in Table 2.

Table 2 — Tolerance for stock and final cut sizes

Dimensions in millimetres

Thickness	Tolerance, t			
	Stock sizes	Final cut sizes		
		$(H, B) \leq 1\,500$	$1\,500 < (H, B) \leq 3\,000$	$(H, B) > 3\,000$
6, 6,8,	±5	±2	±3	±4
7, 8, 9, 10	±5	±3	±4	±5

The limits of squareness are described by deviation between diagonals. Limits are given in Table 3.

Table 3 — Limit on the difference between diagonals

Dimensions in millimetres

Nominal thickness	Size	Limit on the difference between diagonals		
		$(H, B) \leq 1\,500$	$1500 < (H, B) \leq 3\,000$	$(H, B) > 3\,000$
6, 6,8, 7, 8, 9, 10	Stock sizes	3	4	5
	Final cut sizes	3	4	5

4.3 Wire mesh

This is either a square steel mesh of approximate dimensions 12,5 mm or 25,0 mm, or a diamond mesh of approximate dimensions 19 mm.

The mesh is welded at all intersections and manufactured from wire of diameter ≥0,42 mm.

5 Quality requirements

5.1 General

One quality level is considered in this document. 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:

— out of square,

— waviness, and

— bow.

There are three different types of deviation of the wire considered which may occur simultaneously.

They are shown in Figure 3 and are:

— out of square,

— waviness, and

— bow.

5.2 Methods of observation and measurement

5.2.1 Visual faults

5.2.1.1 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 and 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 visually disturbing faults.

a) Spot faults

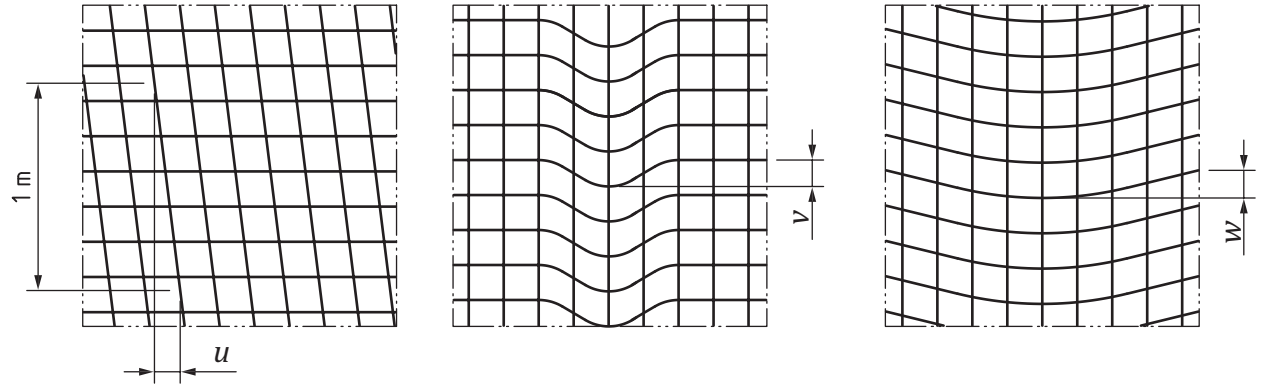
Measure the dimensions of these faults with a micrometre with graduations in tenths of a millimetre. Note the number, dimensions and concentration of the spot faults.

b) Linear/extended faults

Note the number of these faults.

5.2.1.2 Pattern faults

A reference, e.g. line or straight edge, is placed on the glass as shown in Figure 2. The deviations, *u*, *v* or *w* of the pattern in relation to this reference are measured.



Out of square Waviness Bow

NOTE 1 The scale of these drawings is exaggerated to be explicit.

NOTE 2 Deviation measurement is not possible for all kinds of patterns.

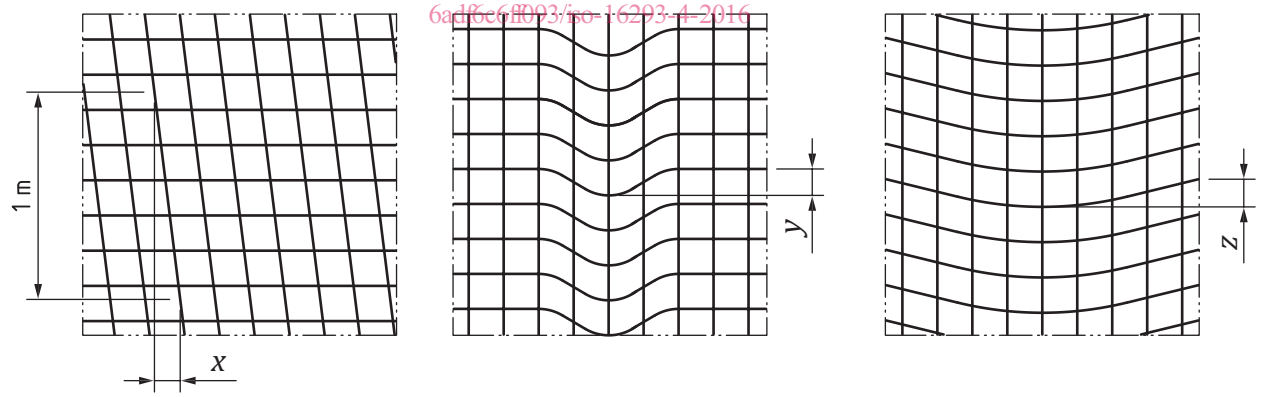
Figure 2 — Representations of the type of pattern faults

5.2.1.3 Wire faults

A reference, e.g. line or straight edge, is placed parallel to the direction of the wires. The deviations, *x*, *y*, or *z*, of the wire in relation to this reference are measured (see Figure 3).

Any penetration of the glass surface by the wire is noted.

Any breaks in the wire are noted.



Out of square Waviness Bow

NOTE The scale of these drawings is exaggerated to be explicit.

Figure 3 — Representations of the types of wire faults

5.2.2 Edge defects for final cut sizes

5.2.2.1 Entrant and emergent faults

These faults are shown in Figures 4 and 5. The dimensions h_1, h_2 and p and the glass thickness, e, are measured.