

Specification for

Hermetically sealed flat double glazing units

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- Scottish Development Department
- The Glass and Glazing Federation*
- Trades Union Congress

The organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

- Aluminium Window Association
- Flat Glass Association
- Flat glass Manufactures' Association
- Institution of Fire Engineers
- Insulation Glazing Association
- Sealant Manufactures' Conference

This British Standard, having been prepared under the direction of the Elements and Components for Buildings Standards Committee, was published under the authority of the Executive Board and comes into effect on 31 December 1979.

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Foreword

This British Standard has been prepared under the direction of the Elements and Components for Buildings Standards Committee. It covers factory made hermetically sealed flat double glazing units used for insulation in building. These units are intended to be glazed in accordance with CP 152.

Compliance with the tests is an assurance to the purchaser and the customer that the seal of units, manufactured to the same design and under similar conditions, will fulfil the performance requirements specified in this standard.

The sample testing specified in the appendices is designed to reflect the performance, in service, of symmetrical and asymmetrical units manufactured by the techniques employed in routine production.

The detail design of units is not covered by this standard, this being a matter for individual manufacturers.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 14, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This British Standard specifies performance requirements and associated test methods for the sealing arrangements and fabrication of factory made hermetically sealed flat double glazing units. The type of glass and the maximum dimensions and dimensional tolerances for such units are also specified. The detail design of units is not specified.

In addition, attention is drawn to the fact that no requirements are included concerning the specific applications for which double glazing units, complying with the requirements of this standard, may be suitable. For guidance on the correct choice of glazing for a particular application, for instance where safety or wind loading requirements need to be considered, CP 152 should be consulted.

The thermal and acoustic properties of units are not specified in this standard, but typical thermal transmittances for hermetically sealed double glazing units under varying conditions of exposure are given in Table 2.

NOTE This standard does not apply to units incorporating a plastics-covered annealed glass.

2 References

The titles of the standards publications referred to in this standard are listed on the inside back cover.

3 Definitions

For the purposes of this British Standard the following definitions apply.

3.1

hermetically sealed double glazing units

assemblies consisting of two panes of glass fixed at a given distance apart by a spacer and hermetically sealed around the edges

NOTE The space thus formed will contain dehydrated air or other gases.

3.2

symmetrical hermetically sealed double glazing units

a unit comprising two panes of glass of similar thickness

3.3

asymmetrical hermetically sealed double glazing units

a unit comprising two panes of dissimilar glass made of either patterned or clear glass and/or differing in thickness

3.4

spacer

the component used to control the space between two panes of glass in double glazing units

3.5

fracture

a crack in a pane of glass which penetrates through the thickness of the glass

3.6

nominal thickness

the manufactured thickness within agreed tolerances

3.7

nominal thickness of the unit

the sum of the nominal thicknesses of the two panes of glass and the spacer

4 Materials

All glass used in the fabrication of hermetically sealed double glazing units shall be flat glass and shall be of one of the types classified in BS 952.

If the unit includes edge protection in the form of a channel or tape as a permanent component, this shall be of corrosion resistant material, e.g. aluminium alloy HE9 complying with the requirements of BS 1474 or stainless steel 316S15 complying with the requirements of BS 970-4 that has a chromium content of not less than 14 %.

NOTE It is intended that glass in these units should be fixed in accordance with the recommendations of CP 152.

The material of the spacer shall be such that the unit will comply with the performance requirements of this standard.

5 Dimensions

The sizes of production units shall not exceed the dimensions given in Table 1.

6 Dimensional tolerances

6.1 Thickness. The thickness of the unit shall be measured on the glass, as close to the edge as is possible, and shall be the thickness of the two panes of glass plus the air space.

The thickness of the unit shall not vary from the nominal thickness of the unit by more than the following tolerances:

- a) for two panes of glass each of 6 mm or less plus air space, ± 1 mm;
- b) for two panes of glass each of over 6 mm plus air space, ± 1.5 mm.

The thickness, when calculated as given in 6.1 a) and b) in any one unit, shall not vary by more than 1.0 mm around the perimeter of the units.

Table 1 — Size limitations for production units

NOTE The glazing sizes given in Table 1 are maxima and only take into consideration the need to ensure effective sealing of the unit. For particular application, e.g. safety considerations and wind loading requirements, they may not be appropriate and the glazing sizes should, then, be selected in accordance with the recommendations given in CP 152.

Glass thickness, mm	Cavity width, mm	Maximum larger dimension, mm	Maximum smaller dimension except for squares, mm	Maximum area, m ²	Maximum square, mm
3	5 to 6	2 110	1 270	2.4	1 270
	8 to 12	2 110	1 270	2.4	1 270
4	5 to 6	2 420	1 300	2.86	1 300
	8 to 10	2 440	1 300	3.17	1 300
	12 to 20	2 440	1 300	3.17	1 300
5	5 to 6	3 000	1 750	4.00	1 750
	8 to 10	3 000	1 750	4.80	2 100
	12 to 20	3 000	1 815	5.10	2 100
6	5 to 6	4 550	1 980	5.88	2 000
	8 to 10	4 550	2 280	8.54	2 440
	12 to 20	4 550	2 440	9.00	2 440
10	6	4 270	2 000	8.54	2 440
	8 to 10	5 000	3 000	15.00	3 000
	12 to 20	5 000	3 180	15.90	3 250
12	12 to 20	5 000	3 180	15.90	3 250

6.2 Length and width. Tolerances on length and width of units shall not be greater than:

- a) up to 3 m², + 3 mm – 0 mm;
- b) 3 m² to 8.5 m², + 4.5 mm – 0 mm;
- c) over 8.5 m², + 6 mm – 0 mm.

7 Marking description

The following shall be legibly and permanently marked on the glass or spacer pieces of every unit manufactured to this British Standard in such a way that the marking can be seen after the units are installed:

- a) the manufacturer's name or trade mark;
- b) the number of this British Standard, i.e. BS 5713.

8 Performance requirements

Hermetically sealed double glazing units shall comply with the following performance requirements:

- a) there shall be no evidence of contamination on the interior glass surfaces of the units when inspected in accordance with **A.2.1**;

b) the units shall show no indication of leakage at the seal when tested in accordance with **A.2.2**;

c) the units shall show no evidence of frost or condensation on the interior glass surfaces when tested in accordance with **A.2.3**;

d) the units shall show no evidence of fogging or contamination on the interior glass surfaces after being tested by ultraviolet exposure in accordance with **A.2.4**;

e) a minimum of 11 of the 12 units tested in accordance with **A.2.5** and **A.2.6** shall show no evidence of condensation or frost on the interior glass surfaces.

To verify compliance, test specimen units shall be prepared and tested in accordance with appendix A. If the test specimen units pass the tests as described in appendix A, the units which they represent shall be deemed to comply with the performance requirements specified in a) to e) above.