

Specification for
Ships' windows

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The following BSI references relate to the work on this standard:
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Contents

	Page
Foreword	iii
1 General	1
1.1 Scope	1
1.2 Definitions	1
1.3 Conformity with law or regulation	2
2 Materials	2
2.1 General	2
2.2 Schedule of materials	3
3 Glasses for ships' windows	3
3.1 General	3
3.2 Dimensions of toughened safety glasses	3
3.3 Examination and testing of toughened glasses	5
3.4 Marking	6
4 Dimensions and tolerances for ships' windows	7
5 Design and construction	10
5.1 General	10
5.2 Windows for sea-going ships	10
5.3 Windows for ships in sheltered or inland waters	10
5.4 Hinge pins and window fasteners	11
6 Glazing	11
6.1 General	11
6.2 Wheelhouse windows	12
6.3 Glazing strips, glazing screws and fixing bolts	12
7 Installation and testing	12
7.1 Installation	12
7.2 Testing	13
7.3 Inspection	13
7.4 Testing facilities	13
8 Identification	13
Appendix A Examination of toughened safety glass using polarized light	14
Appendix B Suitable apparatus for load stamp test of toughened safety glass	15
Appendix C Timber for ships' window frames	15
Appendix D Windows for ships operating in sheltered waters	16
Appendix E Method for calculating the thickness of toughened safety glass using design pressure head formulae	16
Figure 1 — Edge of the glass	5
Figure 2 — Rectangular windows	7
Figure 3 — Category 1 and Category 2 windows	9
Figure 4 — Profile showing tiers, datum deck and weather deck	9
Figure 5 — Polariscope for examining for standard of toughening of glass	14
Figure 6 — Apparatus for load stamp test of toughened glass	15
Figure 7 — Curve for determination of factor β based on window size ratio	18
Table 2 — Tolerance on thickness of glass	4
Table 3 — Tolerance on flatness and parallelism of glass	4
Table 4 — Dimensions of arris for edge of glasses	4
Table 5 — Proof loading for load stamp test	5
Table 6 — Dimensions of ships' windows	8
Table 7 — Dimensions and number of window hinge pins and fasteners	11

	Page
Table 8 — Glazing dimensions for wheelhouse windows	12
Table 9 — Dimensions for glazing strips, glazing screws and fixing bolts	12
Table 10 — Maximum allowable pressure head on toughened safety glass for standard sizes of ships' windows	17

Foreword

This British Standard has been prepared under the authority of the Shipbuilding and Marine Industry Standards Committee and provides requirements for the design (including dimensions), construction, glazing, testing and installation of ships' windows.

The standard is based on the experience of glass and window manufacturers and shipbuilders, and of Authorities who apply to ships the provisions of the International Convention for the Safety of Life at Sea, (1960) and of the International Convention respecting Load Lines, (1930 and 1966) and follows the standard being prepared by Technical Committee ISO/TC 8 — Shipbuilding, of the International Organisation for Standardization (ISO).

Consideration has also been given to the safety of passengers and crew and also to the safety of the ship, having regard to the safety convention and load line convention, both of which require that openings in ships' hulls and ships' superstructure shall be efficiently protected.

The design and scantlings of ships' windows in this standard will normally be applicable to ships engaged on sea voyages, but in the case of ships on restricted services such modifications of this standard as appears reasonable may be allowed, having regard to the services of these ships.

The dimensions of ships' windows specified have been adopted from the future ISO standard being prepared by the Technical Committee ISO/TC 8 — Shipbuilding, of the International Organisation for Standardization, (in which the United Kingdom has taken an active part), to facilitate the repair of ships' windows.

The standard also includes requirements for the testing of glasses for ships' windows, based on ISO 614. Details of the apparatus to be used for the testing of glasses is given in the Appendices.

The requirements of this British Standard appertaining to toughened safety glasses for ships' windows supersede those specified in BS 3925:1965, which will accordingly be withdrawn.

It is not the purpose of this standard to specify precautions, such as the provision of shutters, that may have to be taken in certain weather conditions for the protection of glasses in ships' windows.

A further related standard in this Marine Series is BS MA . . . , *Specification for side scuttles for ships*, (revision of BS 3024), in course of preparation.

This standard makes reference to the following British Standards:

BS 309, *Whiteheart malleable iron castings*.

BS 310, *Blackheart malleable iron castings*.

BS 952, *Classification of glass for glazing and terminology for work on glass*.

BS 970, *Wrought steels in the form of blooms, billets, bars and forgings*.

BS 1400, *Copper alloy ingots and copper and copper alloy castings*.

BS 1490, *Aluminium and aluminium alloy ingots and castings*.

BS 1631, See BS 3100.

BS 1632, See BS 3100.

BS 2872, *Copper and copper alloys. Forging stock and forgings*.

BS 2874, *Copper and copper alloys. Rods and sections (other than forging stock)*.

BS 3100, *Steel castings for general engineering purposes*.

BS 1631, *Austenitic chromium-nickel steel castings for resistance to corrosion*.

BS 1632, *Austenitic chromium-nickel-molybdenum steel castings for resistance to corrosion*.

BS 3643, *ISO metric screw threads — Part 1 Thread data and standard thread series — Part 2 Limits and tolerances for coarse pitch series threads*.

BS 4360, *Weldable structural steels*.

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 to iv, pages 1 to 18, 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.

NOTE 1 Users of this British Standard: Marine Series should note that while observing the requirements of the Standard they should at the same time ensure compliance with such statutory requirements, rules and regulations as may be applicable to the individual ship concerned. (See also 1.3)

NOTE 2 Attention is drawn to the fact that some ships' windows are subject to letters patent.

1 General

1.1 Scope

This British Standard specifies requirements for the design (including dimensions), construction, scantlings, glazing, testing and installation of non-opening and opening type windows for ships. It also specifies the thicknesses of toughened safety glasses for ships' windows located in the respective tier positions in both passenger and non-passenger ships.

1.2 Definitions

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

1.2.1

passenger ship

a ship carrying more than 12 passengers

1.2.2

bulkhead deck

the uppermost deck to which the transverse watertight bulkheads extend. Where used herein refers to passenger ships only

1.2.3

datum deck

the freeboard deck in a non-passenger ship and the bulkhead deck or freeboard deck whichever is the higher in a passenger ship

1.2.4

freeboard deck

the deck from which the freeboards assigned to the ship are calculated, being either:

- 1) the uppermost complete deck exposed to weather and sea which has permanent means of closing all openings in its weather portions and below which all openings in the sides of the ship are fitted with means of watertight closing, or
- 2) at the request of the owner and subject to the approval of the Department of Trade and Industry, a deck lower than that described in 1.2.4 1) which may be permitted subject to its being a complete and permanent deck that is continuous both firstly, in a fore and aft direction at least between the machinery space and the peak bulkheads of the ship, and secondly, athwartships. In a ship having a discontinuous freeboard deck the lower line of the exposed deck and the continuation of that line parallel to the upper part of the deck is taken as the freeboard deck.

1.2.5

superstructure

a decked structure on the freeboard deck which entitles the ship to a reduction in freeboard. Deckhouses whose sides are within 1.5 m from the ship's side are, for the purpose of this Standard, treated as a superstructure without regard to allowance for freeboard

1.2.6

tiers

spaces above the higher of the bulkhead deck or freeboard deck in passenger ships or the freeboard deck in non-passenger ships

1.2.7

safety glass (General definition.)

a glass which, if fractured, gives fragments which are less liable to cause severe cuts than fragments of ordinary glass

1.2.8

toughened safety glass

glass which has been converted to safety glass by subjection to a process of heating and rapid cooling so that if fractured it disintegrates into small pieces and, in addition, its liability to fracture under the action of external forces or changes of temperature is greatly reduced

1.2.9

laminated toughened safety glass

a product consisting of two or more pieces of toughened safety glass firmly united to and alternating with one or more pieces of reinforcing material known as “interlayer” or “interleaf”. The adhesion should be such that fracture will not cause the glass to separate from the interlayer to any substantial extent and that the glass will not break into large fragments capable of causing severe injury

1.2.10

batch

a quantity of glasses of the same size and thickness and which show a similar strain pattern when viewed by polarized light

1.3 Conformity with law or regulation

The purchaser shall disclose to the supplier at the time of the inquiry any statutory or other regulations with which the windows are intended to comply.

Windows fitted in all British merchant ships have to satisfy the requirements of:

- 1) The Merchant Shipping (Passenger Ship Construction) Rules 1965 — (Statutory Instrument 1965, No. 1103).
- 2) The Merchant Shipping (Cargo Ship Construction and Survey) Rules 1965 — (Statutory Instrument 1965, No. 1104).

NOTE For passenger vessels registered in the United Kingdom the windows are required to be constructed to the satisfaction of a marine surveyor of the Department of Trade and Industry.

2 Materials

2.1 General

The materials used in the construction of window scantlings to this standard shall comply with those specified in 2.2 as regards chemical composition and mechanical properties, as a minimum requirement. The mechanical testing of all materials specified in 2.2 shall be carried out in accordance with the mechanical test requirements of the appropriate British Standard listed in the schedule.