INTERNATIONAL STANDARD

ISO 5797-1

First edition
1989-07-01

Shipbuilding and marine structures — Windows and side scuttles for fire-resistant constructions — Specifications —

Part 1: "B" class divisions

Construction navale et structures maritimes — Fenêtres et hublots pour constructions résistant au feu — Spécifications — Partie 1: Cloisonnements de type «B»

Reference number
ISO 5797-1 : 1989 (E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 5797-1 was prepared by Technical Committee ISO/TC 8, *Shipbuilding and marine structures.*

ISO 5797 consists of the following parts, under the general title *Shipbuilding and marine structures — Windows and side scuttles for fire-resistant constructions — Specifications*:

— *Part 1: "B" class divisions*

— *Part 2: "A" class divisions*

Annex A of this International Standard is given for information only.

International Organization for Standardization
Case postale 56 • CH-1211 Genève 20 • Switzerland
Printed in Switzerland

Shipbuilding and marine structures — Windows and side scuttles for fire-resistant constructions — Specifications —

Part 1: "B" class divisions

1 Scope

This part of ISO 5797 gives additional specifications for windows and side scuttles intended for installation in fire-resistant constructions in ships and marine structures as defined in Chapter II, Regulation 3 of the 1981 *Amendments to the International Convention for the Safety of Life at Sea, 1974 (SOLAS 1974)*.

It lays down the requirements on the construction for glass panes, glassholder and main frame as well as testing and marking of such windows and side scuttles.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 5797. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 5797 are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 614 : 1976, *Shipbuilding — Toughened safety glass panes for ships' side scuttles and ships' rectangular windows — Punch method of non-destructive strength testing.*

ISO 1095 : 1976, *Shipbuilding — Toughened safety glass panes for ships' side scuttles.*

ISO 1751 : 1977, *Shipbuilding — Ships' side scuttles.*

ISO 3254 : 1975, *Shipbuilding — Toughened safety glass panes for ships' rectangular windows.*

ISO 3903 : 1977, *Shipbuilding — Ships' ordinary rectangular windows.*

ISO 5779 : 1987, *Shipbuilding — Ordinary rectangular windows — Positioning.*

ISO 5780 : 1987, *Shipbuilding — Side scuttles — Positioning.*

IMO Resolution A.517(13) (adopted 17 November 1983), *Recommendation on fire test procedures for "A", "B" and "F" class divisions.*

International Convention for the Safety of Life at Sea, 1974 (SOLAS 1974) with Amendments.

3 Classification

Windows and side scuttles for fire-resistant constructions in accordance with this part of ISO 5797 shall meet the IMO[1)] requirements of either 3.1 or 3.2.

3.1 "B-0" fire-resistant constructions

No flame shall break through for the first 30 min of the standard fire test. The unexposed face of the glass is not subject to any requirements concerning temperature rise.

3.2 "B-15" fire-resistant constructions

The same requirements as for "B-0" class fire-resistant constructions shall be met concerning flame breaking through. In addition, within 15 min, the average temperature of the unexposed face of the glass shall not rise more than 139 °C above the original temperature, nor shall the temperature at any point of the external face of the glass, including any joint, rise more than 225 °C above the original temperature.

NOTE — Additional information on IMO requirements is given in annex A.

1) International Maritime Organization.

4 Glass panes

4.1 Construction

The glass pane (laminated or separated) shall have on its external face a toughened safety glass pane of adequate thickness, t_1, to withstand the design pressure corresponding to the location of the ships' windows and side scuttles (see ISO 5779 for rectangular windows and ISO 5780 for side scuttles). They may be constructed for example as described in 4.2 and shown in figure 1.

4.2 Types

As shown in figure 1, there are different types of glass pane:

Type T — single: One single glass pane of toughened safety glass.

Type L — laminated: Two glass panes with an interlayer. The external glass pane is of toughened safety glass (main glass pane), the internal glass pane of a safety glass material type that is left optional.

Type MT and ML — separated: Two or more glass panes separated by a gap. The external glass pane shall be in accordance with glass pane type T or L. The internal glass pane is of a safety glass material type that is left optional.

4.3 Dimensions

4.3.1 Outer dimensions, edges, parallelism, flatness and tolerances for glass panes of rectangular windows and side scuttles shall be in accordance with ISO 3254 and ISO 1095 respectively.

4.3.2 The thickness t_1 of the main glass pane (external glass pane) is the designation thickness of the glass pane. These are minimum values which shall not be less than those thicknesses given in ISO 3254 or ISO 1095 in relation to the type and nominal size of rectangular windows or side scuttles.

4.3.3 The thicknesses of the other glass panes forming component parts of whole glass panes of types L, MT and ML are left to the manufacturer's option.

4.4 Testing

For main glass panes, the strength test given in ISO 614 applies.

5 Construction of glassholder and main frame

The glassholder and the main frame shall be constructed such that the integrity of the bulkhead in which it is to be fitted is maintained when tested in accordance with the IMO requirements (see annex A).

The minimum requirements, reference materials and constructions for rectangular windows and side scuttles are given in ISO 3903 and ISO 1751 respectively.

6 Testing

6.1 Manufacturing series

A manufacturing series of windows or side scuttles is identified by

— the type of window or side scuttle, defined by a drawing representing the glassholder and main frame and indicating the nature of the metallic materials and joint;

— the type of glass material being used and its composition.

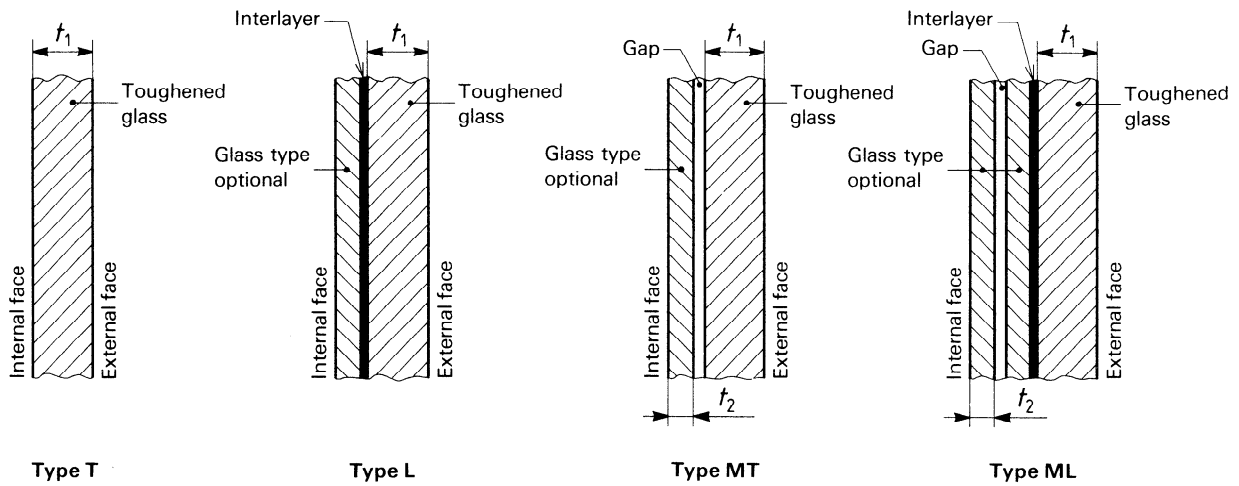


Figure 1 — Composition of whole glass panes

6.2 Prototype testing

6.2.1 The manufacturer shall have prototype testing carried out by an authorized test laboratory.

6.2.2 Each test shall be carried out according to IMO Resolution A.517(13) with the window or side scuttle of the largest nominal size acceptable with that thickness of the main glass pane.

7 Test report

7.1 The authorized test laboratory which has carried out the test shall deliver a test report to the manufacturer.

This test report shall be numbered and accompanied by a drawing of the assembly tested.

7.2 The test report shall specify:

— the nominal dimensions of the window or side scuttle tested;

— the type and composition of the glass pane fitted to the window or side scuttle and the thickness of the glass panes (and gaps, if appropriate);

— the class of the window or side scuttle under consideration (“B-0” or “B-15”).

7.3 The test report shall be considered valid for all windows and side scuttles of the same series of manufacture and of nominal dimensions equal to or smaller than the prototype tested.

The glass fitted in the window or side scuttle of nominal dimensions equal to or smaller than the prototype tested shall have the same type, composition and thickness of glass as the prototype tested.

8 Marking

8.1 In addition to the marking indicated in ISO 3903 and ISO 1751, rectangular windows and side scuttles for fire-resistant constructions shall be marked with the fire-resistance class (“B-0” or “B-15”).

8.2 The main glass pane shall be marked as indicated in ISO 614. The whole glass pane in the fire-resistant construction shall be marked with the following additional indications readable from the inside and printed along the side lines and at the lower corner of the triangle:

— the words “FIRE-PROOF”;

— the words “ANTI-FEU”;

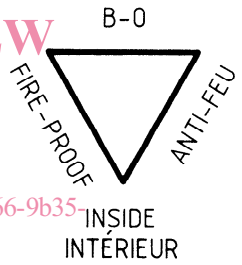
— fire-resistance class (“B-0” or “B-15”);

— the word “INSIDE”;

— the word “INTÉRIEUR”.

EXAMPLE

A clear glass pane of toughened safety glass, fire-resistance class “B-0” shall be marked as follows:



9 Designation

Side scuttles for fire-resistant constructions shall be designated in principle in accordance with ISO 1751.

Rectangular windows for fire-resistant constructions shall be designated in principle in accordance with ISO 3903.

Annex A
(informative)

IMO requirements on fire-resistant constructions of "B" class divisions

A.1 IMO Regulations

For windows and side scuttles in fire-resistant constructions, the relevant IMO Regulations for "'B' class divisions" apply.

These windows and side scuttles shall withstand the "standard fire test" according to IMO Regulations.

The IMO Regulations are specified in Chapter II-2 of the Annex to the *International Convention for the Safety of Life at Sea, 1974 (SOLAS 1974)* as amended by the 1981 *Amendments*.

For the test procedure IMO Resolution A.517(13) *Recommendation on fire test procedures for "A", "B" and "F" class divisions* applies.

A.2 Standard fire test (according to *SOLAS 1974*, Chapter II-2, Regulation 3)

"A standard fire test" is one in which specimens of the relevant bulkheads or decks are exposed in a test furnace to temperatures corresponding approximately to the standard time-temperature curve. The specimen shall have an exposed surface of not less than 4,65 m^2 and height (or length of deck) of 2,44 m resembling as closely as possible the intended construction and including where appropriate at least one joint. The standard time-temperature curve is defined by a smooth curve drawn through the following points measured above the initial furnace temperature:

- at the end of the first 5 minutes: 556 °C
- at the end of the first 10 minutes: 659 °C
- at the end of the first 15 minutes: 718 °C
- at the end of the first 30 minutes: 821 °C
- at the end of the first 60 minutes: 925 °C

A.3 "B" class divisions (according to *SOLAS 1974*, Chapter II-2, Regulation 3)

"'B' class divisions" are those divisions formed by bulkheads, decks, ceilings or linings which comply with the following:

1 they shall be so constructed as to be capable of preventing the passage of flame to the end of the first half hour of the standard fire test;

2 they shall have an insulation value such that the average temperature of the unexposed side will not rise more than 139 °C above the original temperature, nor will the temperature at any one point, including any joint, rise more than 225 °C above the original temperature, within the time listed below:

Class "B-15" ..... 15 minutes,
Class "B-0" ..... 0 minutes;

3 they shall be constructed of approved non-combustible materials and all materials entering into the construction and erection of "B" class divisions shall be non-combustible, with the exception that combustible veneers may be permitted provided they meet other requirements of this Chapter.

This page intentionally left blank

UDC 629.12.011.83 : 666.117.3

Descriptors : shipbuilding, fire protection, windows, portholes, glass, specifications, fire resistant properties, construction, marking, designation.

Price based on 4 pages