INTERNATIONAL STANDARD

ISO 1751

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Ships and marine technology — Ships' side scuttles

Navires et technologie maritime — Hublots de navires

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 1751 was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 8, *Ship design*.

This third edition cancels and replaces the second edition (ISO 1751:1993), which has been technically revised.

Ships and marine technology — Ships' side scuttles

1 Scope

This International Standard specifies the classification of side scuttles for ships (series, types and models), and gives the dimensions for interchangeability and construction, materials, tests, marking and designation of these framed side scuttles with thermally toughened safety glass panes.

NOTE This International Standard is based on the experience of side scuttles and glass manufacturers, shipbuilders and authorities who apply to ships the Regulations of the *International Convention for the Safety of Life at Sea, 1974 (SOLAS 1974)*, as amended, 1981, and of the *International Convention of Load Lines, 1966*, as amended.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 261, *ISO general purpose metric screw threads — General plan*

ISO 614, *Ships and marine technology — Toughened safety glass panes for rectangular windows and side scuttles — Punch method of non-destructive strength testing*

ISO 1207, *Slotted cheese head screws — Product grade A*

ISO 1580, *Slotted pan head screws — Product grade A*

ISO 2009, *Slotted countersunk flat head screws — Product grade A*

ISO 2010, *Slotted raised countersunk head screws — Product grade A*

ISO 3902, *Shipbuilding and marine structures — Gaskets for rectangular windows and side scuttles*

ISO 5780, *Shipbuilding — Side scuttles — Positioning*

ISO 5797, *Ships and marine technology — Windows and side scuttles for fire-resistant constructions*

ISO 6345, *Shipbuilding and marine structures — Windows and side scuttles — Vocabulary*

ISO 7045, *Pan head screws with type H or type Z cross recess — Product grade A*

ISO 7046-2, *Countersunk flat head screws (common head style) with type H or type Z cross recess — Product grade A — Part 2: Steel screws of property class 8.8, stainless steel screws and non-ferrous metal screws*

ISO 7047, *Raised countersunk head screws (common head style) with type H or type Z cross recess — Product grade A*

ISO 21005, *Ships and marine technology — Thermally toughened safety glass panes for windows and side scuttles*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6345 and ISO 21005 apply.

4 Classification

Side scuttles shall be classified by series, types, models and nominal sizes in accordance with 4.1 to 4.4, respectively.

NOTE A survey of standardized side scuttles is given in 4.5 and Table 3.

Further classification characteristics are the material classes; see 6.2 and Table 10.

4.1 Series

4.1.1 Regular series (N)

Side scuttles of the regular series shall contain a thermally toughened safety glass pane that meets the requirements of ISO 21005.

4.1.2 Fire-resistant series (P)

Side scuttles of the fire-resistant series shall be provided for installation in “A” or “B” class divisions. These side scuttles shall contain glass panes that meet the requirements of ISO 5797.

Modifications to the construction and installation of the glassholder and main frame, as well as additional testing and marking, shall be in accordance with ISO 5797.

4.2 Types

Ships’ side scuttles may be of three types:

— Type A: Heavy-type side scuttle;

— Type B: Medium-type side scuttle;

— Type C: Light-type side scuttle.

4.3 Models

Models shall be designated in accordance with the following principal characteristics:

— opening or non-opening model;

— with or without deadlight;

— opening direction of glassholder;

— type of fastening.

The various combinations of these, which are in accordance with the definitions in ISO 6345, are given in Table 1.

4.4 Nominal sizes

The nominal size is defined by the clear light diameter d_1 of the side scuttle; see Table 2.

4.5 Survey of types, models and sizes

A survey is given in Table 3 for all side scuttles standardized in this International Standard. It applies to series N (regular) and series P (fire-resistant) side scuttles.

The illustrations given in Table 3 do not define the construction; they are simplified examples for information only.

Table 1 — Principal characteristics of models

Opening or non-opening	Deadlight	Further attributes	Fastening		Model designation code		
			bolted (B)	welded (W)	Type A	Type B	Type C
opening	with	left hand[a] (L)	B	—	LB		—
			—	W	LW		—
		right hand[a] (R)	B	—	RB		—
			—	W	RW		—
		common hinged (S)	B	—	SB		—
			—	W	SW		—
	without	—	B	—	—		LRB
			—	W	—		LRW
non-opening	with	—	B	—	NB		—
			—	W	NW		—
	without		B	—	—		NB
			—	W			NW

[a] The deadlight opening upwards. Opening side scuttles with deadlight opening downwards may be supplied by special agreement only.

Table 2 — Nominal sizes of side scuttles

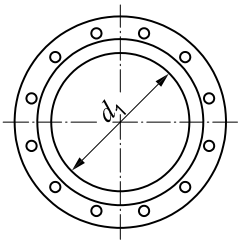
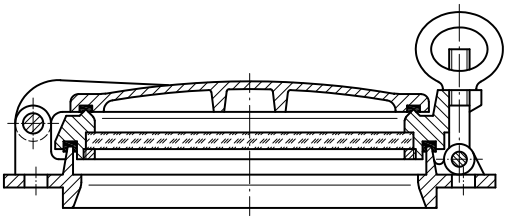
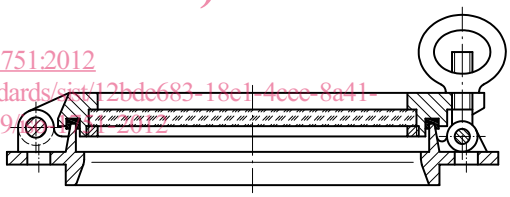
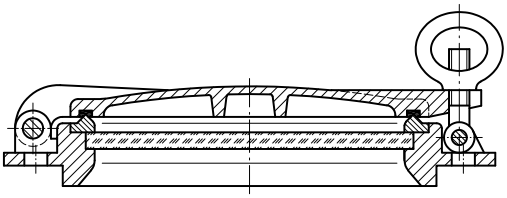
Type	Nominal size d_1 mm						Illustration
A	200	250	300	350	400	450	
B	200	250	300	350	400	450	
C	200	250	300	350	400	450	

Table 3 — Survey of side scuttles

Type (see 4.2)	Model (see 4.3) bolted	Model (see 4.3) welded	Nominal size d_1 (see 4.4)	Illustration (bolted side scuttles are shown)
Opening side scuttle				
A and B	LB	—	Type A: 200 to 450	with deadlight 
	—	LW		
	RB	—		
	—	RW	Type B: 200 to 450	
	SB	—		
	—	SW		
C	LRB	—	200 to 450	without deadlight 
	—	LRW		
Non-opening side scuttle				
A and B	NB	—	Type A: 200 to 450	with deadlight 
	—	NW	Type B: 200 to 450	
C	NB	—	200 to 450	without deadlight 
	—	NW		

5 Technical requirements

5.1 General

Side scuttles of all series, types, models and nominal sizes shall be manufactured to the requirements (dimensions, materials, etc.) given in this International Standard. They shall be capable of meeting the test requirements specified in Clause 7.

In addition, for side scuttles for fire-resistant construction, the glassholder and the main frame shall be made of a material that keeps its mechanical characteristics at the temperatures given in ISO 5797.

They shall be designed so that temperature gradients do not develop stresses in the glass which could result in rupture.

5.2 Dimensions

5.2.1 Main dimensions

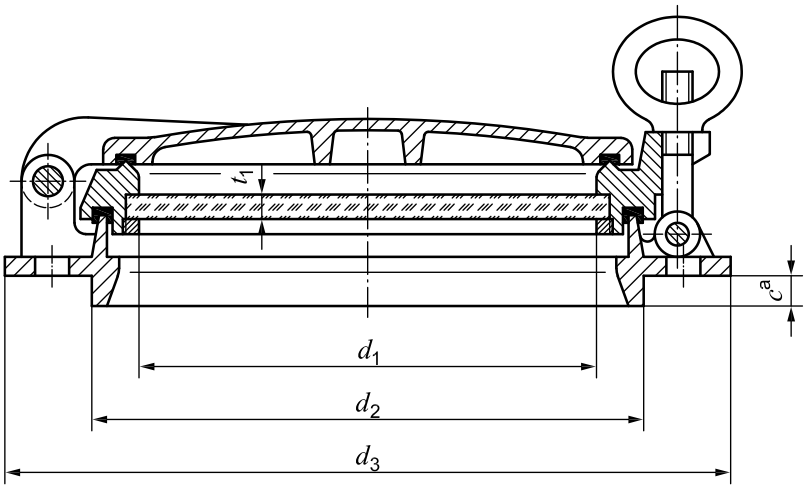
The main dimensions of side scuttles shall be as given in Figure 1 and Tables 4 and 5.

NOTE Figure 1 does not define the construction of any series, type or model of side scuttle; it is given for the indication of standardized dimensions only. The illustration shows an opening side scuttle with deadlight.

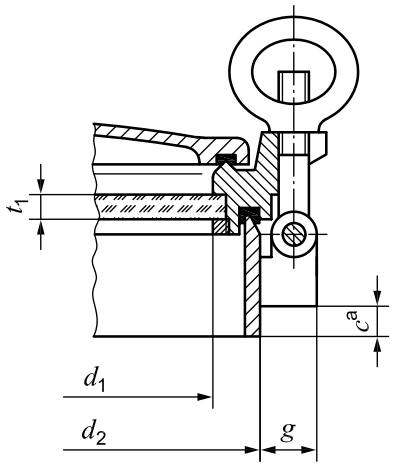
Table 4 — Main dimensions and number of fasteners of side scuttles

Nominal size d_1 mm	d_2 mm ± 2	d_3 mm max.	g mm max.	Minimum number of fasteners[a] Type A glass-holder	Type A dead-light	Type B glass-holder	Type B dead-light	Type C glass-holder
200	250	350	50	2	2	2	2	2
250	305	400	47,5	3	2	3	2	2
300	360	450	45	3	3	3	2	3
350	410	500	45	3	3	3	3	3
400	460	550	45	3	3	3	3	3
450	510	600	45	4	3	4	3	3

[a] The number of fasteners comprises only closing devices and hinges with round holes; see 5.6.



a) Bolted model



b) Welded model

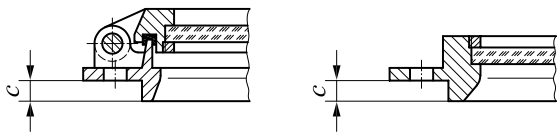
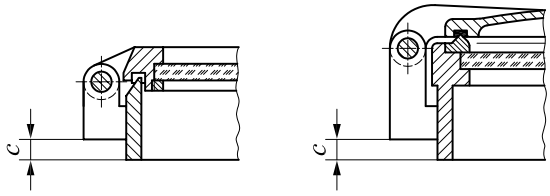
[a] For the spigot height (dimension c), see 5.2.2 and Table 5.

Figure 1 — Main dimensions of side scuttle

5.2.2 Height of spigot

The recommended nominal heights of the main frame spigot, which should be preferred for all types, models and nominal sizes of side scuttles, are given in Table 5.

Table 5 — Height of spigot (dimension c)

Model		Manufacturing height mm	Actual height mm
Bolted		16	The actual required delivery height of the spigot may be agreed when ordering the side scuttle.
Welded		≥ 30	

5.2.3 Glass recess

The diameter of the glass recess, d_4, in the glassholder of opening side scuttles and in the main frame of non-opening side scuttles shall be as given in Figure 5 and Table 6.

The minimum glass thicknesses for side scuttles series N (regular) are given in ISO 21005.

The minimum glass thicknesses for side scuttles series P (fire-resistant) are given in ISO 5797.

5.3 Glass retaining frame

For fixing the glass pane, a glass retaining frame shall be provided.

Threaded glass retaining frames for screwing in or flanged glass retaining frames with holes for screwing on with screws are acceptable.

5.3.1 Threaded glass retaining frame (RFA)

The main dimensions of a threaded glass retaining frame are given in Figure 2 and Table 6.

A Type RFA glass retaining frame shall not be used for non-opening, welded side scuttles (model NW).

5.3.2 Flanged glass retaining frame (RFB and RFC)

The main dimensions of a flanged glass retaining frame are given in Figures 3 and 4, and Table 6.

A Type RFB glass retaining frame may be used for all types and models of side scuttles.

Type RFC may only be used for side scuttles without deadlight.

5.3.3 Screws for flanged glass retaining frames

To fasten glass retaining frames of Types RFB and RFC, slotted or cross recessed screws in accordance with ISO 1207, ISO 1580, ISO 2009, ISO 2010, ISO 7045, ISO 7046-2 or ISO 7047 shall be used, at the window manufacturer's discretion. Such screws shall have the following characteristics:

— thread: M 6;

— length: minimum 16 mm;

— material: marine corrosion-resistant stainless steel A50, copper alloy and aluminium, strength corresponding to the maximum allowable pressure, see Annex A.

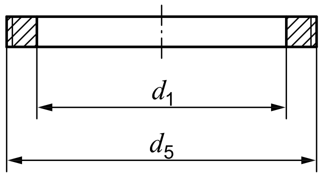
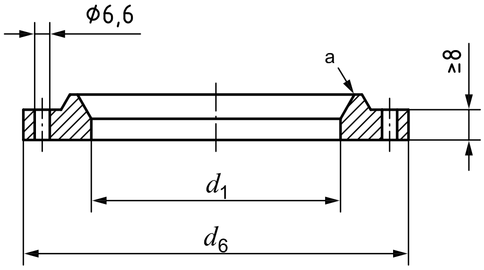


Figure 2 — Glass retaining frame, Type RFA

Dimensions in millimetres



a Sealing surface.

Figure 3 — Flanged glass retaining frame, Type RFB