

# INTERNATIONAL STANDARD

**ISO  
6042**

Second edition  
1998-08-15

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## **Ships and marine technology — Weathertight single-leaf steel doors**

*Navires et technologie maritime — Portes en acier à un seul battant,  
étanches aux intempéries*



Reference number  
ISO 6042:1998(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 voting. Publication as an International Standard requires approval by at least 75% of the member bodies casting a vote.

International Standard ISO 6042 was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 8, *Structures*.

This second edition cancels and replaces the first edition (ISO 6042:1980), of which it constitutes a technical revision.

## Amendments

The following amendments have been made to the first edition (1980-11-01).

- a) The opening direction has been defined.
- b) The door type FBR (corner radius 100 mm) has been added.
- c) The nominal sizes of doors have been related to position 1 or 2 according to LLC66.
- d) Doors with eight clips have been dropped.
- e) Doors with four clips have been added.
- f) The inclined and vertical position of the door-seal retaining bar has been admitted.
- g) The tolerances for L and B have been changed.
- h) The distance between the hinge's pivot and the door frame has been changed from 55 mm to 60 mm.
- i) A statement, that the door seal may also be constructed as hollow sections, has been added.
- j) The minimum tensile strength of the steel for door plates, frames, hinges, etc. has been changed to 340 N/mm<sup>2</sup>.
- k) The designation has been added.
- l) The standard has been editorially revised.

Annex A of this International Standard is for information only.

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Printed in Switzerland

# Ships and marine technology — Weathertight single-leaf steel doors

## 1 Scope

This International Standard specifies the main dimensions, materials, quality and conditions of manufacture for weathertight single-leaf steel doors for application on board ships, in order to ensure interchangeability of the steel doors. The remaining dimensions, welding and other details are left to the manufacturer.

These doors generally conform to the requirements of the International Convention on Load Lines 1966 (LLC66). The possibility for application of the doors to position 1 and position 2 has to be considered for each situation and, where necessary, the doors shall be provided with additional stiffening (see also table 1).

Annex A provides the dimensions of openings in bulkheads.

NOTE — Users of this International Standard should note that while observing the requirements of this 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.

## 2 Normative reference

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

ISO 3796:1976, *Shipbuilding — Clear openings through frames for external single-leaf doors*.

## 3 Doors, door frames, door plates and accessories

### 3.1 Opening direction

For the definitions of left-hand door and right-hand door, see figure 1.

Doors in accordance with this International Standard can be used for both opening directions (left-hand or right-hand) before they are installed in bulkhead plates.

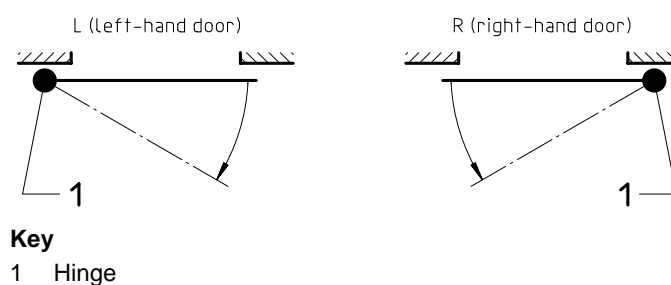
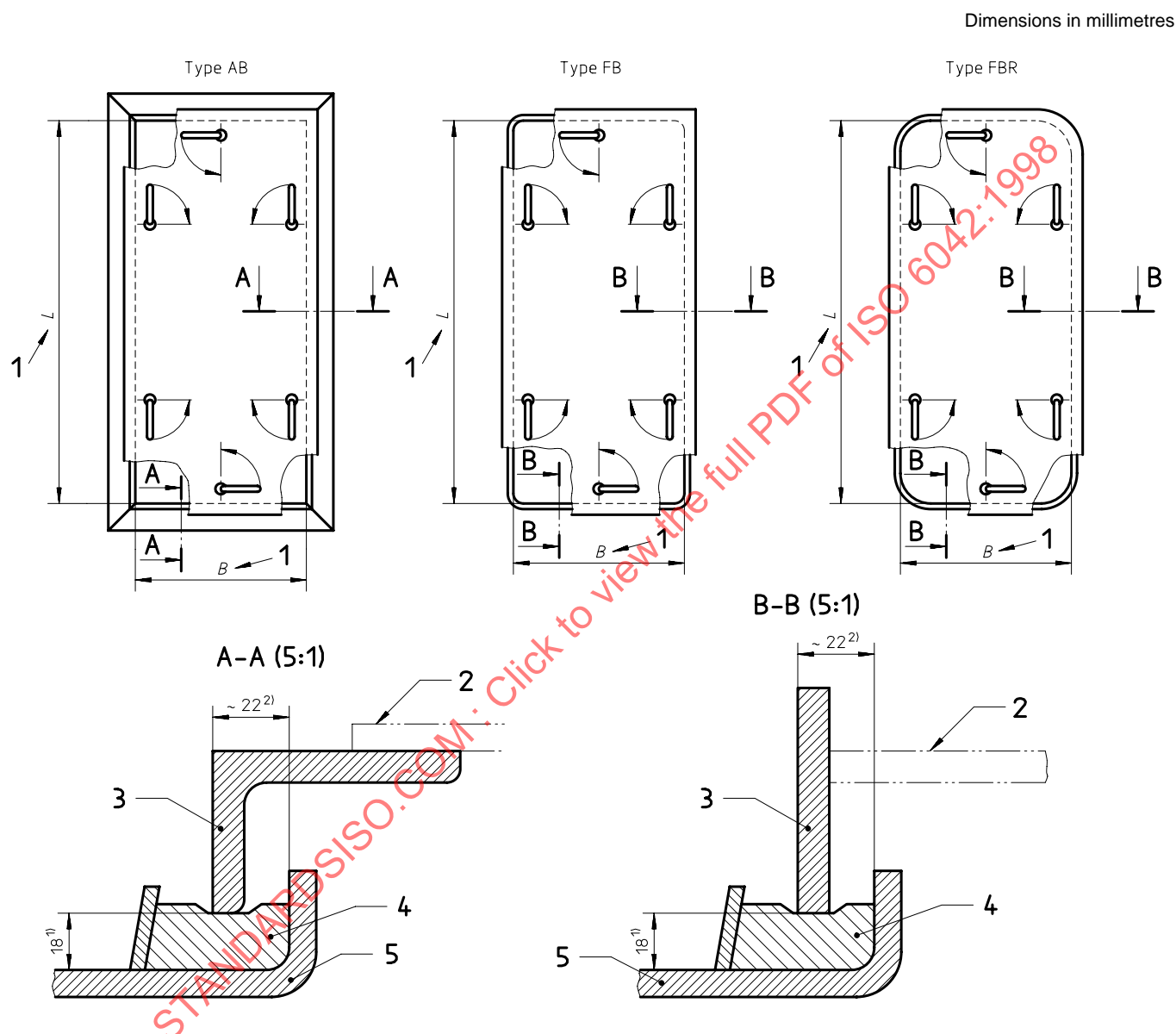


Figure 1 — Opening directions

### 3.2 Door types (see figure 2)

Doors shall be specified either as type AB, using an angle bar frame, or as type FB respectively FBR, using a flat bar frame. The nominal sizes (height  $L \times$  width  $B$ ) given in table 1 are in accordance with ISO 3796.

The assignment of door types to door frames and door plates is shown in table 2.



#### Key

- 1 Clear opening
- 2 Bulkhead plate
- 3 Door frame
- 4 Door seal
- 5 Door plate

NOTE — Shown as six clip design; four clip design see 3.5.1, figure 5b). Door clips engage wedges in the direction of arrows.

- 1) When the seal is compressed by 2 mm.
- 2) Door plate to be positioned centrally within the frame.

Figure 2 — Types of doors

**Table 1 — Doors, nominal sizes, application**

Dimensions in millimetres

Door Nominal size <i>L × B</i>	Application in accordance with LLC66 in position(s)
1 200 × 600	1 and 2
1 400 × 600	
1 400 × 750	
1 400 × 900	
1 600 × 600	2 only
1 600 × 750	
1 600 × 900	

**Table 2 — Assignment of door types to door frames and door plates**

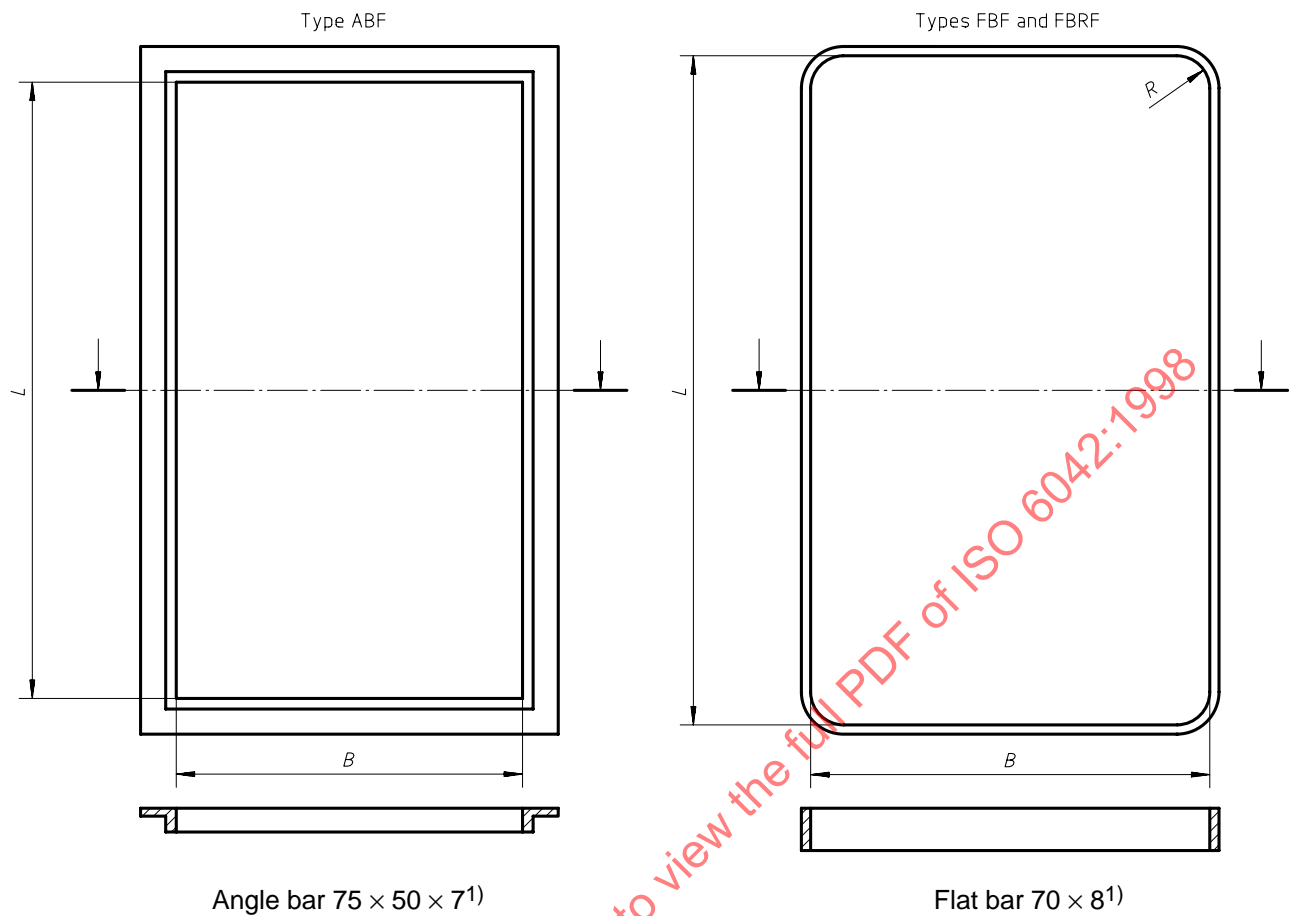
Door type	Associated type of	
	door frame (according to 3.3)	door plate (according to 3.4)
AB	ABF	SP
FB	FBF	SP
FBR	FBRF	RP

**3.3 Door frame** (see figure 3)

In order to prevent damage to the door seal, the edges of the upper part of the door frame should be rounded or chamfered.

The dimensions of door frames are given in table 3.

Dimensions in millimetres



1) Other sections may be used, provided the interchangeability of dimensions is maintained.

Figure 3 — Types of door frames

Table 3 — Dimensions of door frames

Dimensions in millimetres

Nominal size	$L$ $\begin{smallmatrix} 0 \\ -2 \end{smallmatrix}$	$B$ $\begin{smallmatrix} 0 \\ -2 \end{smallmatrix}$	$R$ for type	
			FBF	FBRF
1 200 x 600	1 200	600	$31 \pm 1$	$100 \pm 1,5$
1 400 x 600	1 400	600		
1 400 x 750	1 400	750		
1 400 x 900	1 400	900		
1 600 x 600	1 600	600		
1 600 x 750	1 600	750		
1 600 x 900	1 600	900		

### 3.4 Door plates

The door-seal retaining bar can be placed in inclined or vertical position, as indicated in figure 4.

The dimensions (height  $L$  and width  $B$ ) of door plates are given in table 4.

Dimensions in millimetres

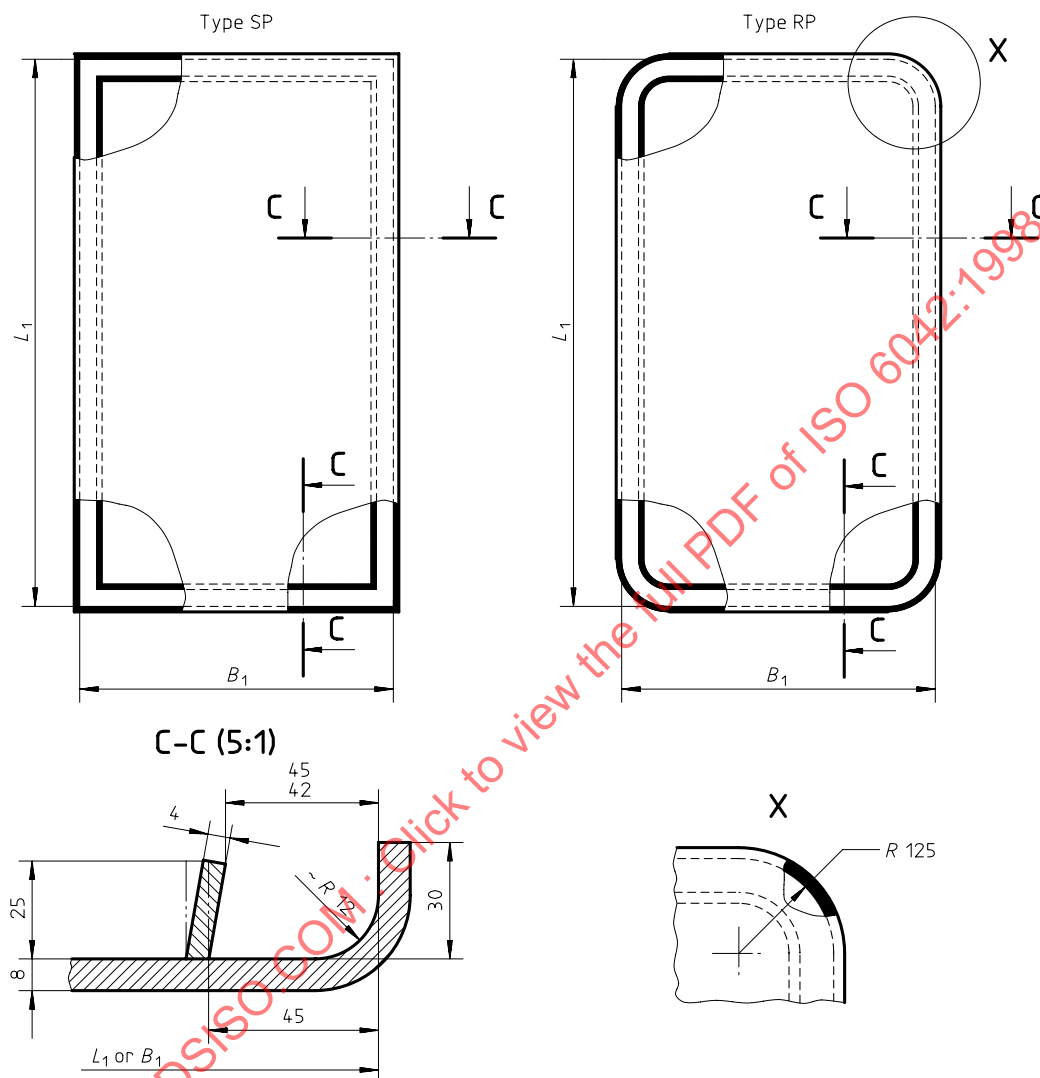


Figure 4 — Types of door plates

Table 4 — Dimensions of door plates

Dimensions in millimetres

Nominal size	$L_1$ $\pm 2$	$B_1$ $\pm 2$
1 200 × 600	1 244	644
1 400 × 600	1 444	644
1 400 × 750	1 444	794
1 400 × 900	1 444	944
1 600 × 600	1 644	644
1 600 × 750	1 644	794
1 600 × 900	1 644	944

3.5 Fittings

3.5.1 Location of door clips and hinges

All values given in figure 5, for the centre lines of door clips and hinges, refer to the clear opening (see figure 2).

Table 5 shows the number of clips for each nominal size.

Dimensions in millimetres

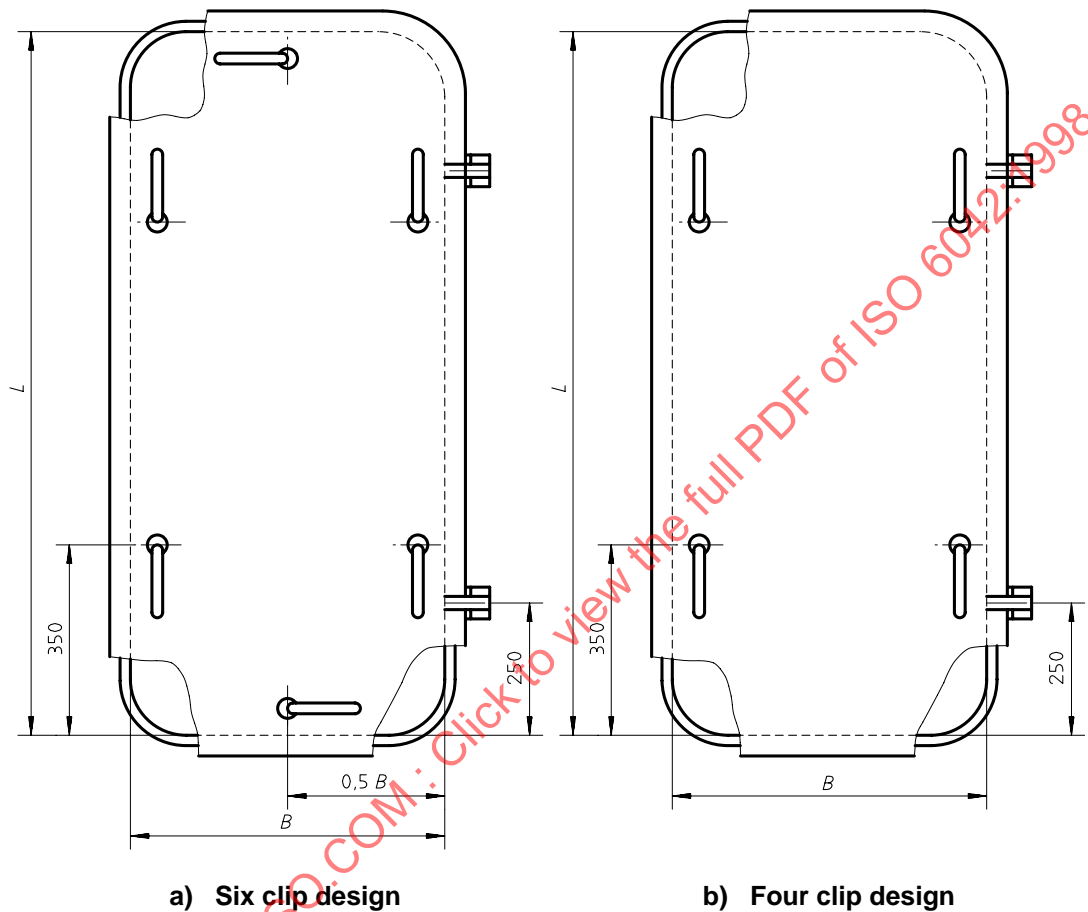


Figure 5 — Location of fittings

Table 5 — Number of clips

Dimensions in millimetres

Nominal sizes	Number of clips
1 200 × 600	6
1 400 × 600	6
1 400 × 750	6
1 400 × 900	6
1 600 × 600	4
1 600 × 750	4
1 600 × 900	6

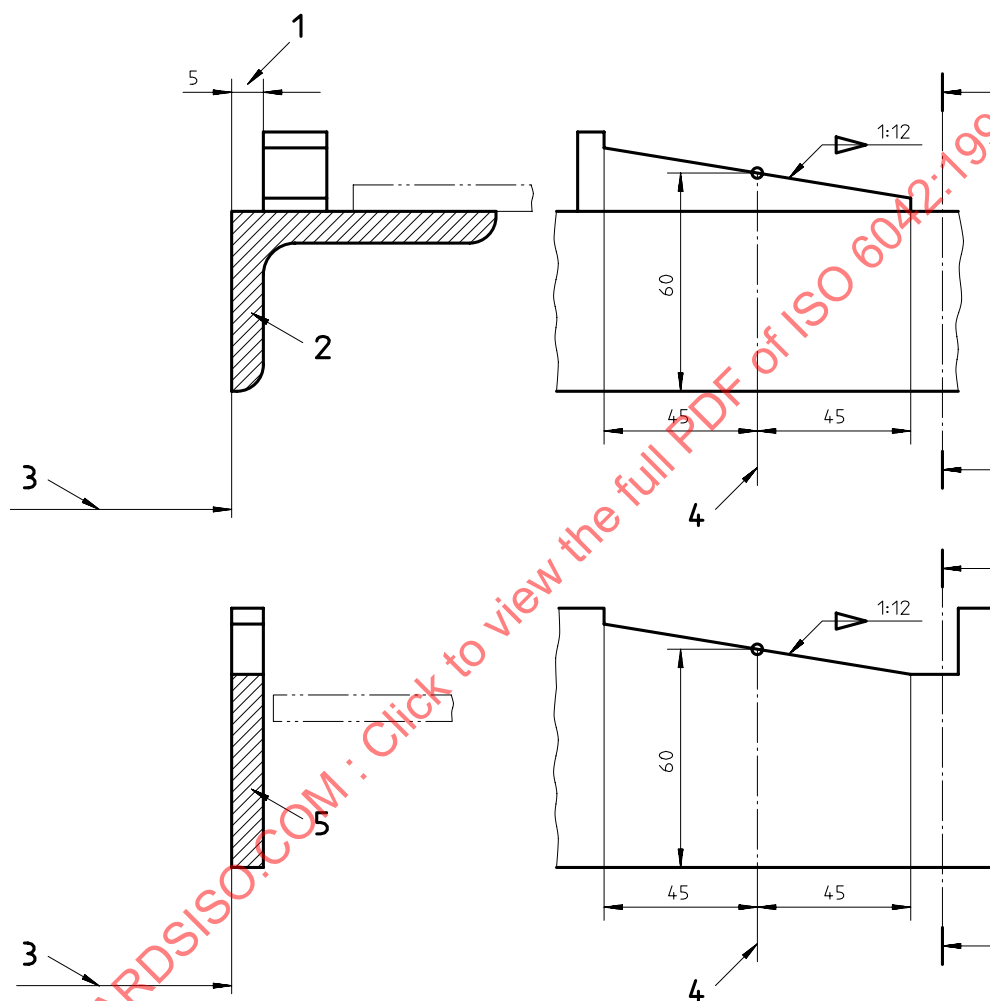


### 3.5.2 Wedges (see figure 6)

Wedges shall be arranged on the frames to align with the centre lines of each clip. A slope of 1:12 is recommended. The direction of the slope of the wedge shall correspond to the required closing direction of the clips, as shown in figure 2.

NOTE — For a correct fit of the frame edge with the packing material, a final adjustment of clip wedges may be added.

Dimensions in millimetres



#### Key

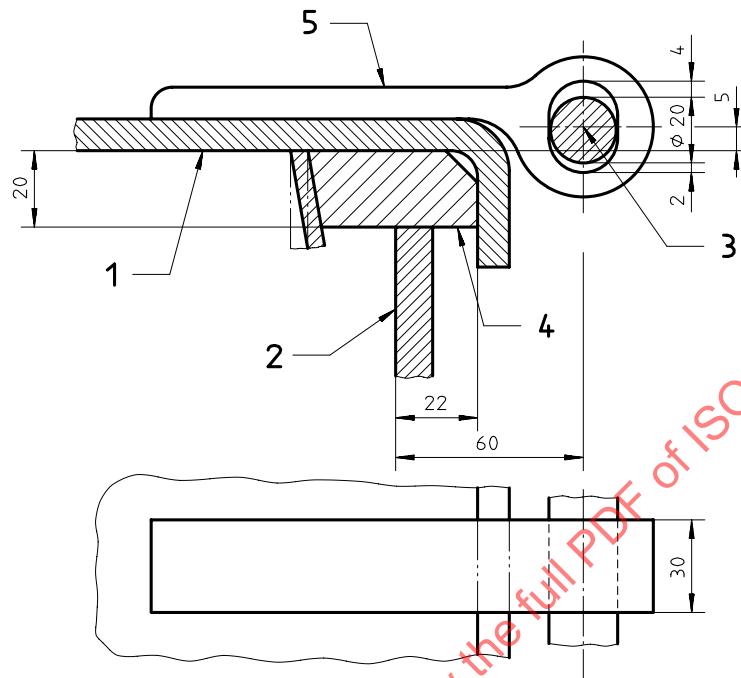
- 1 Maximum offset of wedge from clear opening
- 2 Door frame Type ABF
- 3 Clear opening
- 4 Centre line of clip
- 5 Door frame Type FBF or FBRF

Figure 6 — Wedges

### 3.5.3 Hinges (see figure 7)

Two hinges shall be fitted to each door. Each hinge shall be provided with an oval eye hole, in order to allow clips to compress the door seal uniformly.

Dimensions in millimetres



#### Key

- 1 Door plate
- 2 Door frame
- 3 Pin
- 4 Door seal, non-compressed
- 5 Typical shape

Figure 7 — Hinges

### 3.5.4 Door seal

The door seal shall have a cross-section as shown in figure 8.

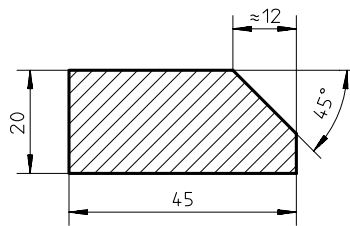
In order to increase the elasticity, a hole may be added at the longitudinal centre line of the door seal.

The size of the chamfer will depend on the radius of the door panel.

The door seal shall be fitted to the door as indicated in figure 7 and shall be secured by a retaining bar. The seal shall be bonded to the door plate by an adhesive suitable for marine conditions.

It shall be ensured, by a depth stop positioned on the centre line of each clip, that the door seal cannot be compressed to less than 16 mm.

Dimensions in millimetres

**Figure 8 — Door seal cross-section**

## 4 Materials

The door plates and frames shall be manufactured from weldable steel of 340 N/mm<sup>2</sup> minimum tensile strength or equivalent shipbuilding-quality steel.

The door-seal retaining bars, clips, wedges, hinges and lugs shall be manufactured from weldable mild steel of 340 N/mm<sup>2</sup> minimum tensile strength.

The hinge pin shall be manufactured from corrosion-resistant materials of 350 N/mm<sup>2</sup> minimum tensile strength.

The quality of the resilient sealing material forming the door seal shall be satisfactory for service under marine conditions and shall provide effective and lasting sealing and resealing properties when the door is tightened under normal conditions.

## 5 Quality of manufacture

All door plates and frames shall be free from distortion.

The door plates, frames and fittings shall be suitably treated to remove scale and surface deposits and shall be given a priming coat of paint, where appropriate, to inhibit subsequent corrosion.

The door plates, frames, clips and other ancillary fittings shall be free from exposed rough edges likely to cause injury to persons.

For door frames see also 3.3.

Upon assembly of the completed door and frame, the manufacturer shall ensure that there is correct fit of the frame edge with the packing material and continuous contact between the two components when the door is closed (see also 3.5.2).

## 6 Testing of weathertightness

The completed door, when installed on board ship, shall be closed and secured in a normal manner, and then subjected to a test (hose test or equivalent test) carried out to the satisfaction of the representative of the regulatory body concerned.