

# INTERNATIONAL STANDARD

# ISO 5778

Second edition  
1998-08-15

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## **Ships and marine technology — Small weathertight steel hatches**

*Navires et technologie maritime — Petits panneaux en acier, étanches aux  
intempéries*



Reference number  
ISO 5778:1998(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 5778 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 5778:1979), of which it constitutes a technical revision.

## **Amendments**

The following amendments have been made to the first edition (1979-12-15).

- a) The nominal size 830 × 630 has been added.
- b) The inclined and vertical position of the hatch-seal retaining bar has been admitted.
- c) The tolerances for  $a$ ,  $b$ ,  $a_1$  and  $b_2$  have been added in tables 2 and 3.
- d) The text of 3.4.2 has been supplemented.
- e) The distance between the hinge's pivot and the coaming has been changed from 55 mm to 60 mm.
- f) The minimum tensile strength of the steel for coamings, cover plates, hinges, etc. has been changed to 340 N/mm<sup>2</sup>.
- g) The designation has been added.
- h) The standard has been editorially revised.

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International Organization for Standardization  
Case postale 56 • CH-1211 Genève 20 • Switzerland  
Internet iso@iso.ch

Printed in Switzerland

# Ships and marine technology — Small weathertight steel hatches

## 1 Scope

This International Standard specifies the main dimensions, location and number of fittings, materials and quality of manufacture for small weathertight steel hatches for application on board ships in order to ensure interchangeability of the hatches. The remaining dimensions are left to the manufacturer.

The hatches are suitable for loading operations and for giving access to storage compartments and dry cargo holds. The hatches are not suitable as an access to any kind of tanks and shall not be used as escape hatches.

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

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 262:—<sup>1)</sup>, *ISO general-purpose metric screw threads – Selected sizes for screws, bolts and nuts.*

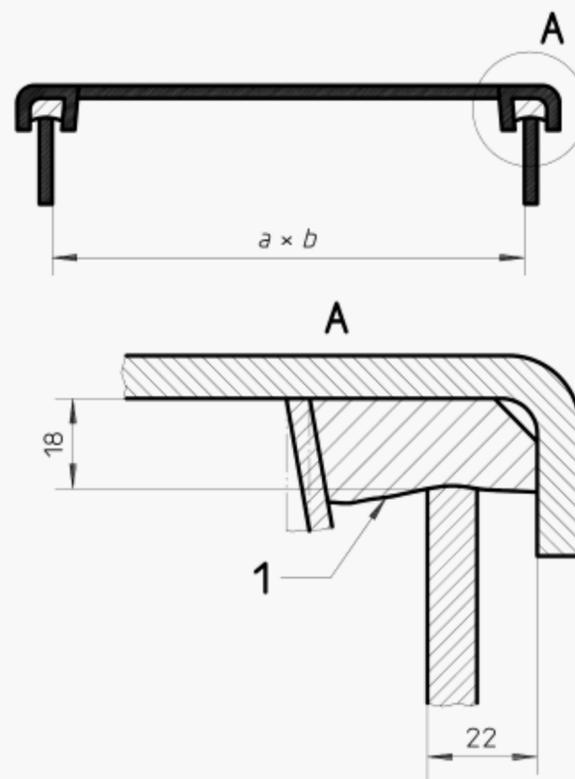
<sup>1)</sup> To be published. (Revision of ISO 262:1973)

### 3 Main dimensions

#### 3.1 Nominal size

The nominal size of a hatch is based on the inside dimensions of the upper part of the coaming, as shown in figure 1 and table 1.

Dimensions in millimetres



**Key**

- 1 Hatch seal

**Figure 1 — Illustration of nominal sizes**

**Table 1 — Values of nominal sizes**

Dimensions in millimetres

Nominal size $a \times b$
630 × 630
630 × 830
830 × 630
830 × 830
1 030 × 1 030
1 330 × 1 330

### 3.2 Upper part of coaming

The upper part of the coaming shall conform to the details of figure 2 and table 2. The coaming may have square or rounded corners as shown in figure 2.

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

Dimensions in millimetres

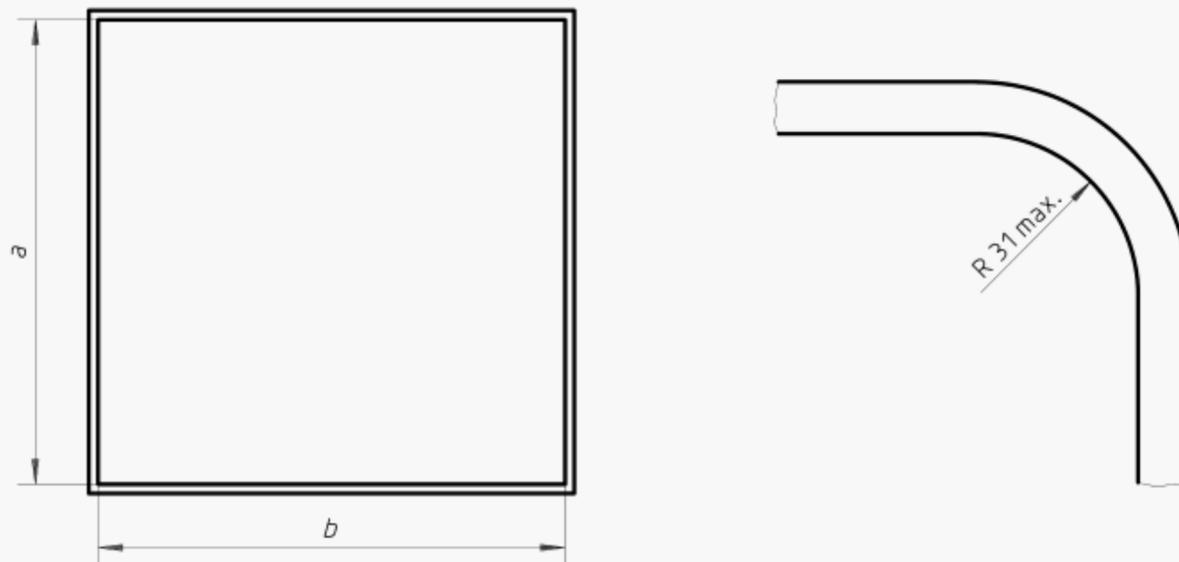


Figure 2 — Upper part of coaming

Table 2 — Sizes of coaming

Dimensions in millimetres

Nominal size	<i>a</i>	<i>b</i>
	0 -2	0 -2
630 × 630	630	630
630 × 830	630	830
830 × 630	830	630
830 × 830	830	830
1 030 × 1 030	1 030	1 030
1 330 × 1 330	1 330	1 330

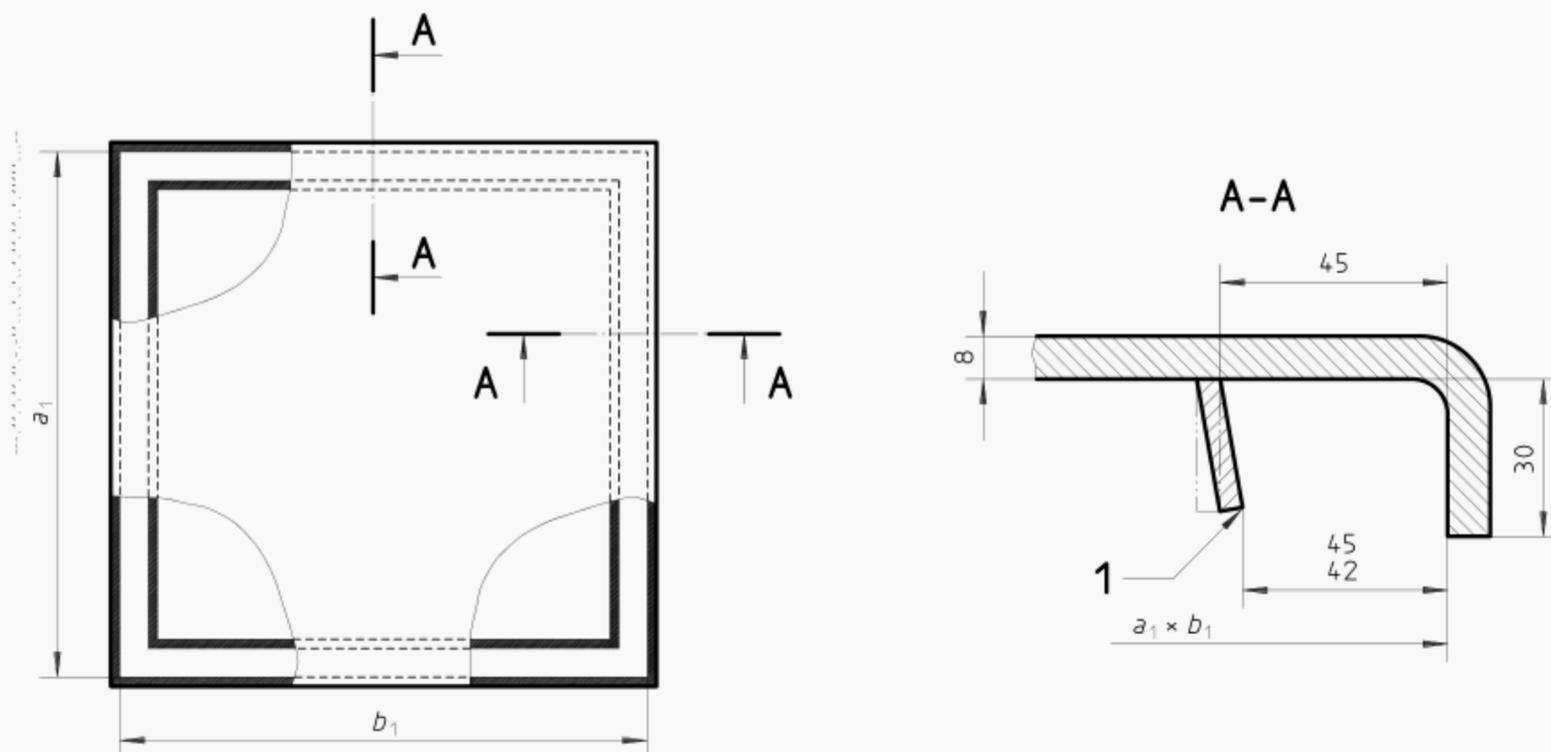
### 3.3 Cover plate

The cover plate shall conform to the details of figure 3 and table 3.

Where the nominal size of the cover plate exceeds 830 mm × 830 mm, the cover plate shall be stiffened in accordance with Regulation 16 (2) of the International Convention on Load Lines (ILLC) 1966.

The hatch-seal retaining bar can be placed in an inclined or vertical position, as indicated in figure 3.

Dimensions in millimetres



**Key**

- 1 Hatch seal retaining bar  
Flat 25 × 4

**Figure 3 — Cover plates**

**Table 3 — Sizes of cover plate**

Dimensions in millimetres

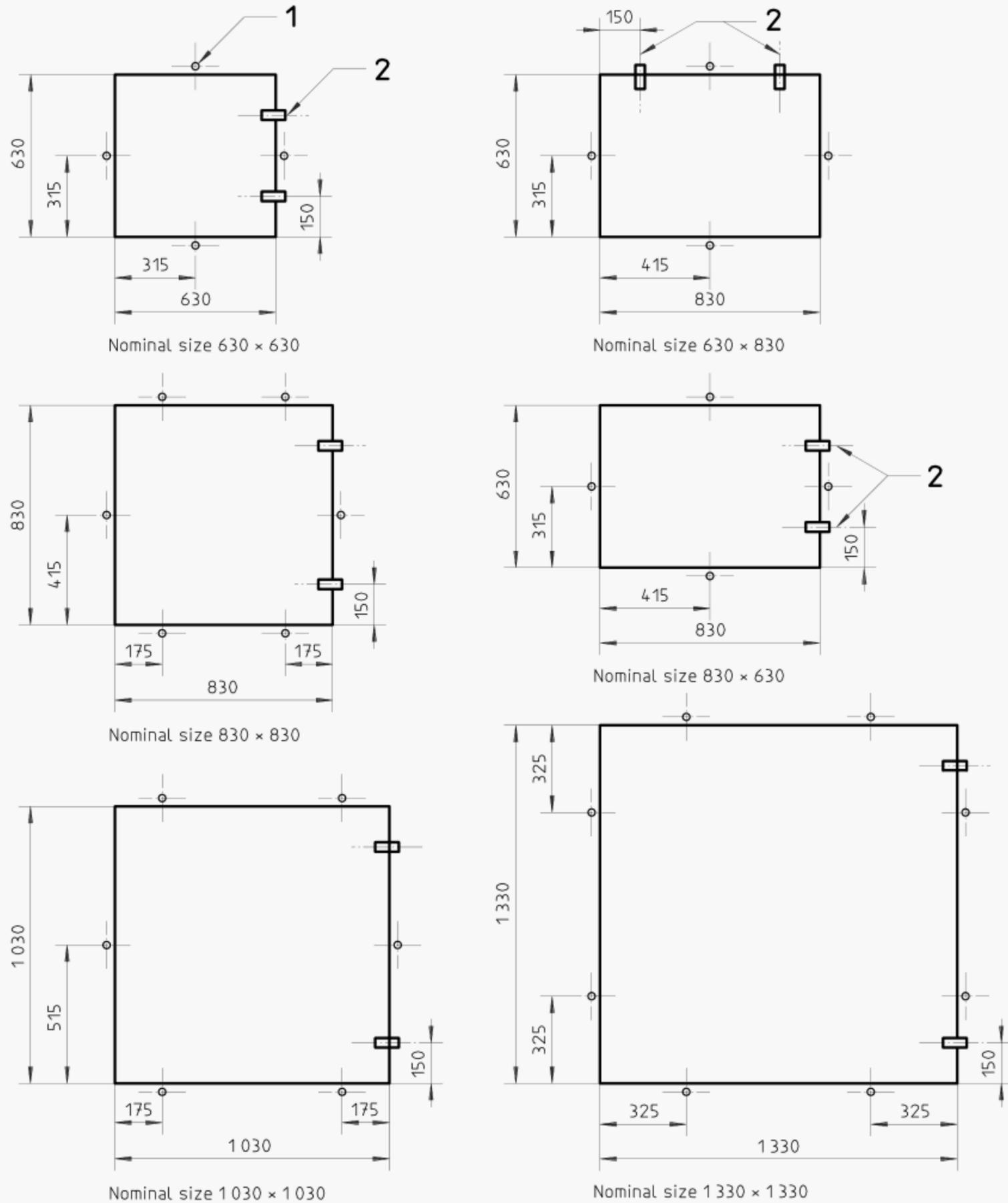
Nominal size	$a_1$ $\pm 2$	$b_1$ $\pm 2$
630 × 630	674	674
630 × 830	674	874
830 × 630	874	674
830 × 830	874	874
1 030 × 1 030	1 074	1 074
1 330 × 1 330	1 374	1 374

### 3.4 Fittings

#### 3.4.1 Location of closing devices and hinges

All the values given in figure 4, for centre lines of closing devices and hinges, refer to the inside dimensions (nominal size) of the upper part of the coaming.

Dimensions in millimetres



**Key**

- 1 Closing device
- 2 Centre line of hinge

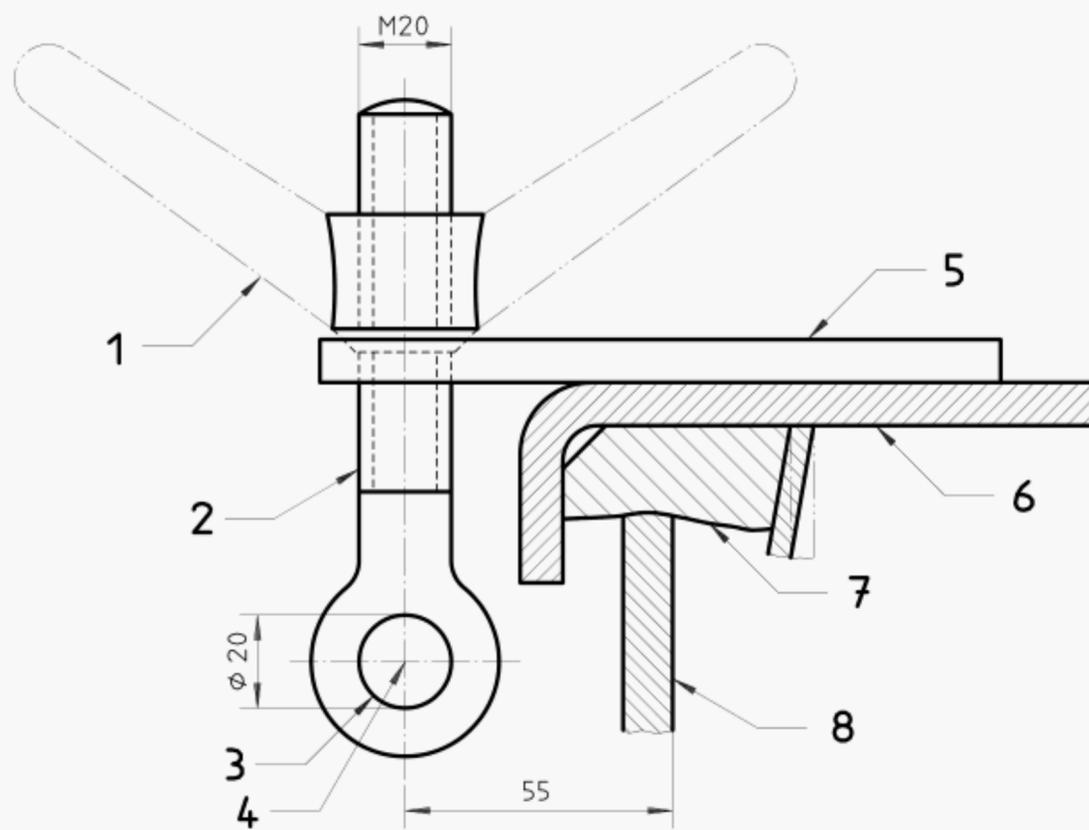
**Figure 4 — Positions of closing devices and hinges**

**3.4.2 Closing devices**

Closing devices shall conform to the dimensions of figure 5.

The wing nut shall be suitable for applying a torque convenient for tightness, by only one man without the help of any tools. Threads of wing nuts and toggle bolts shall be in accordance with ISO 262.

Dimensions in millimetres



**Key**

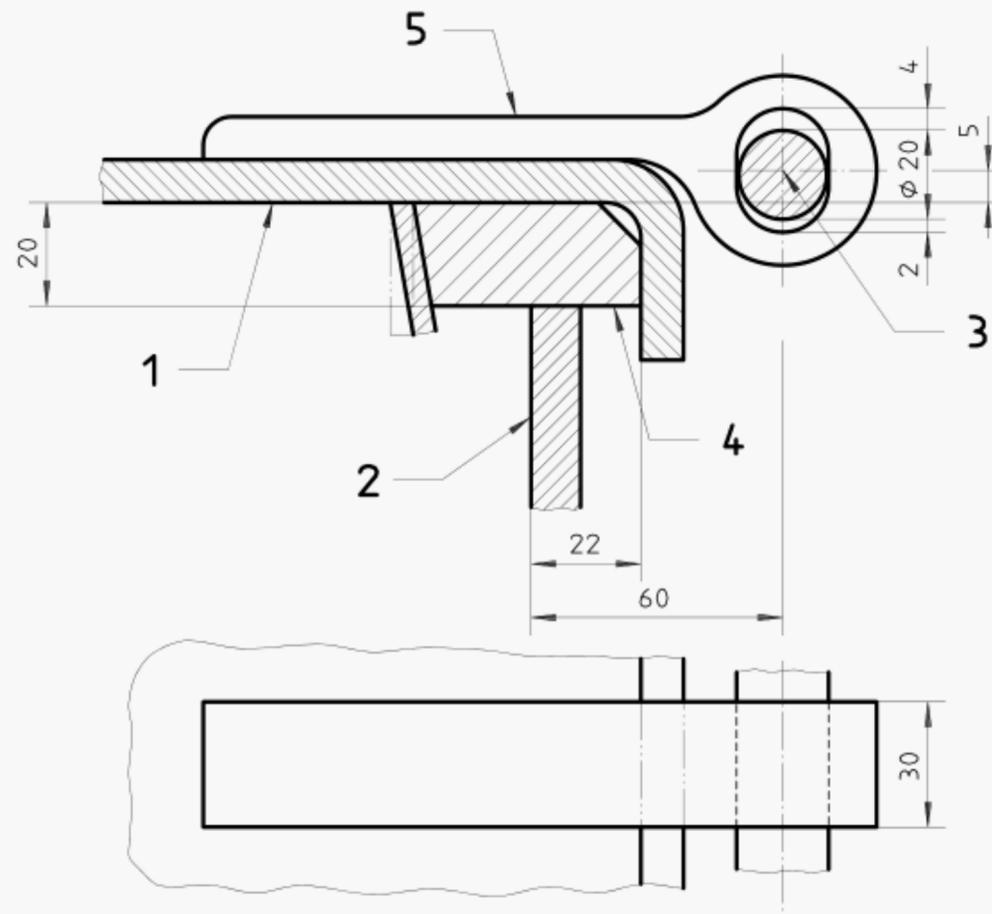
- 1 Wing nut (typical shape)
- 2 Toggle bolt
- 3 Toggle bolt pin
- 4 Centre of toggle bolt
- 5 Lug
- 6 Cover plate
- 7 Hatch seal
- 8 Coaming

**Figure 5 — Closing device**

### 3.4.3 Hinges

Two hinges shall be fitted to each hatch and shall conform to the dimensions of figure 6. Each hinge shall be provided with an oval hole, in order to allow the closing devices to compress the hatch seal.

Dimensions in millimetres



**Key**

- 1 Cover plate
- 2 Coaming
- 3 Centre of hinge pin
- 4 Hatch seal, non-compressed
- 5 Typical shape

**Figure 6 — Hinge**

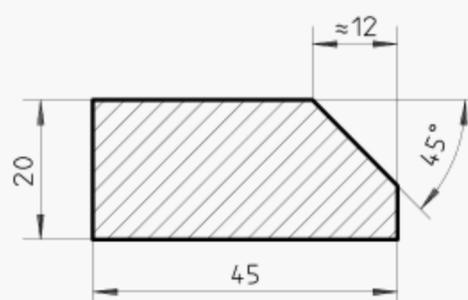
### 3.4.4 Hatch seal

The hatch seal shall have a cross-section of 45 mm × 20 mm (see figure 7), an initial compression of 2 mm being allowed.

The hatch seal shall be fitted to the cover plates as indicated in figure 1 and shall be secured by a retaining bar. The hatch seal shall be bonded to the cover plate by an adhesive suitable for marine conditions.

It shall be ensured, by a depth stop positioned on or near the centre line of each closing device, that the hatch seal material cannot be compressed more than 4 mm.

Dimensions in millimetres



**Figure 7 — Hatch seal, cross-section**

### 3.4.5 Ancillary fittings

It is recommended that provision be made for securing the hatch cover in the raised position and that hatch covers be provided with counterbalance weights when necessary.

## 4 Materials

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

The hatch-seal retaining bars, wing nuts, hinges, lugs and ancillary fittings shall be manufactured from weldable mild steel of 340 N/mm<sup>2</sup> minimum tensile strength.

The toggle bolts and their pins shall be manufactured from corrosion-resistant materials of 350 N/mm<sup>2</sup> minimum tensile strength.

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

## 5 Quality of manufacture

Coamings and covers shall be free from distortion.

Coamings, covers and fittings shall be free from any exposed rough edges likely to cause injury to persons.

For coamings see also 3.2.

The coamings and covers shall be suitably treated by blast cleaning or another process to remove scale and surface deposits and shall be given a priming coat of paint to inhibit subsequent corrosion.

Upon assembly of the completed coaming and cover, the manufacturer shall ensure that there is correct registry of the edge of the coaming with the hatch seal material and continuous contact between the two components when the hatch is closed.

## 6 Testing of weathertightness

The completed hatch, 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.

## 7 Designation

Hatches conforming to this International Standard shall be designated by the following indications, in the order given:

- a) denomination: hatch;
- b) number of this International Standard: ISO 5778;
- c) nominal size, as specified in table 1.

### EXAMPLE

Designation of a small weathertight steel hatch in accordance with this International Standard with the nominal size 830 mm × 630 mm:

**Hatch ISO 5778 — 830 × 630**

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**ICS 47.020.10**

**Descriptors:** shipbuilding, ships, steels, hatchway covers, hinges, closing devices, specifications, dimensions, designation, interchangeability.

Price based on 8 pages

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