



## Standard Specification for Rat Guards, Ship's (Metric)<sup>1</sup>

This standard is issued under the fixed designation F1099M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This specification covers the materials, dimensions, and assembly of steel and aluminum rat guards.

1.2 Rat guards are intended to prevent rats from boarding ships by way of mooring lines.

1.3 The values stated in SI units are to be regarded as the standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

### 2. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

**A525M** Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) By the Hot-Dip Process (Metric)<sup>3</sup>

**B209M** Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric)

### 3. Classification

3.1 Rat guards shall be classified into three types as follows:

3.1.1 *Type I*—Multiple-line (doubling up), self-adjustable, accommodating the mooring line combinations listed in **Table 1**.

3.1.2 *Type II*—Single-line, self-adjustable, accommodating a single 5-mm wire to a 76-mm-diameter mooring line.

3.1.3 *Type III*—Conical shape with tapered, slotted sleeve. Type III rat guards shall be of the following sizes: (a) 75 mm, (b) 125 mm, and (c) 200 mm.

3.2 Types I and II rat guards (see 3.1.1 and 3.1.2) are designed to be installed from the deck or pier without a person

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> Withdrawn.

**TABLE 1 Mooring Line Combinations for Type I Rat Guards**

Mooring Lines Diameter, mm	Number of Lines
5 wire	as required
25-33 line	3 or more
41-50 line	3
50-82 line	2

physically coming in contact with the mooring lines or hawser, by lowering and positioning the guards away from the ship's hull with two ropes that are permanently attached as guide and tie ropes (see **Fig. 1**).

3.3 Type III rat guards (see 3.1.3) require a person to contact the mooring line to pull the two halves of the conical guard around the mooring line, wrap the slotted sleeves (see **Fig. 2**) to the line, and physically close any opening between the mooring line and the circular opening at the center of the guard.

### 4. Ordering Information

4.1 Orders for rat guards under this specification shall include the following information:

4.1.1 ASTM designation.

4.1.2 Type required (see 3.1):

4.1.2.1 If Type III, material required (see 5.1.3).

4.1.2.2 If Type III, size required (see 3.1.3).

4.1.3 Quantity required.

4.1.4 Optional requirements, if any (see Supplementary Requirements S1 through S3).

### 5. Materials and Manufacture

5.1 *Materials:*

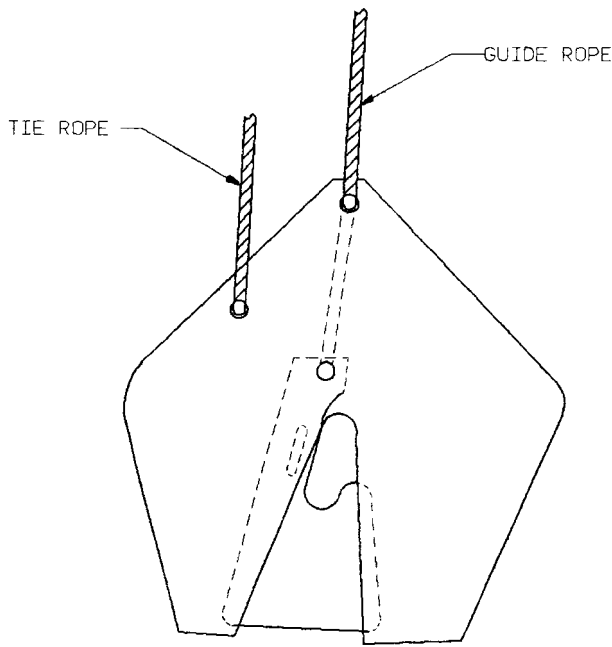
5.1.1 Type I rat guards shall be made of aluminum-alloy sheet metal conforming to the requirements of Specification **B209M**, 6061-T6, or 5052-H32.

5.1.2 Type II rat guards shall be made of galvanized sheet steel conforming to the requirements of Specification **A525M**, Coating Designation 450. The coating shall be a minimum of 450 g/m<sup>2</sup> in accordance with the triple-spot test of Specification **A525M**.

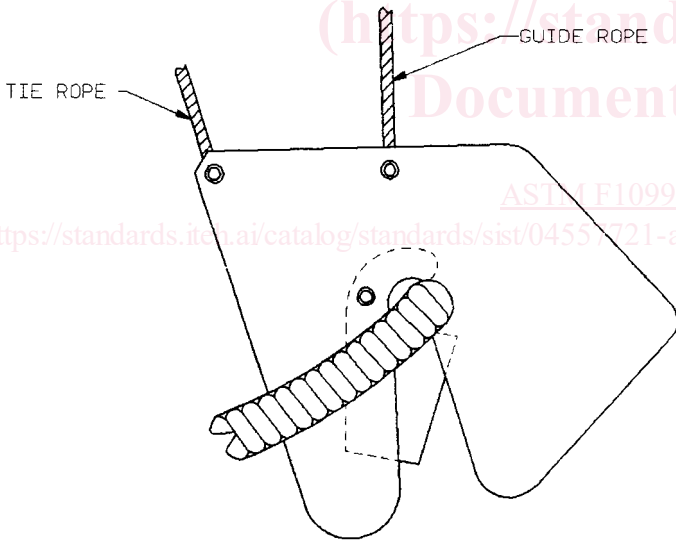
5.1.3 Type III rat guards shall be made of either of the materials specified in 5.1.1 and 5.1.2 (see 4.1.2.1).

5.2 *Manufacture:*

5.2.1 Types I and II rat guards shall be provided with the following:



TYPE I  
MULTIPLE LINE (DOUBLING UP)



TYPE II  
SINGLE LINE

FIG. 1 Types I and II Rat Guard Configuration

5.2.1.1 *Hinge Bolt*—An M 7 × 1 hexagon head bolt 20 mm long with elastic stop nut and washer. All parts shall be corrosion-resistant steel.

5.2.1.2 *Guide and Tie Rope*—Polyester or nylon of good commercial quality, 6- or 9-mm diameter by 6 m long.

5.2.1.3 *Grommet*—Good commercial quality brass and of size suitable for the guide and tie ropes.

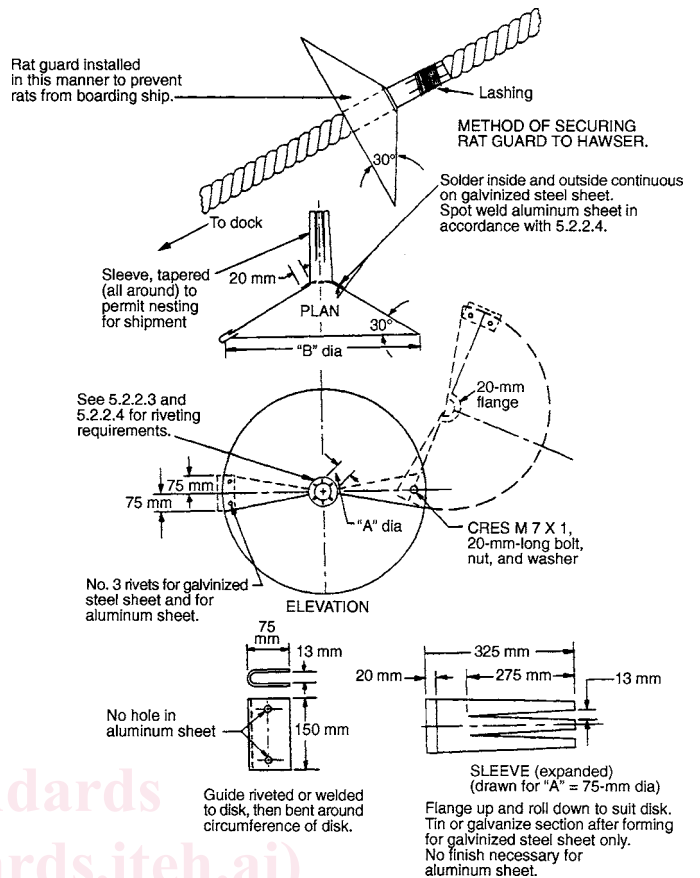


FIG. 2 Assembly of Type III Rat Guards

5.2.2 *Type III Rat Guards*—Type III rat guards shall consist of two half disks and two half tapered sleeves. Both halves shall be identical except one half shall be provided with a “U” shaped sleeve.

5.2.2.1 The hinge bolt provided with each rat guard shall consist of a commercial M 7 × 1 hexagon head bolt, 20-mm-long nut, and washer. All parts shall be corrosion-resistant steel.

5.2.2.2 The galvanized steel or aluminum sleeve shall be slotted as specified in Table 2 and Fig. 2, so that when the rat guard is in place, it may be drawn tightly against the hawser, with lashing. The formed sleeves shall be tapered to permit nesting of the rat guards, for compact shipping.

5.2.2.3 When the rat guard is made of galvanized steel, the sleeve shall be riveted and soldered to the disk with tinner’s type rivets, No. 3, 4-mm diameter for each half sleeve. The

TABLE 2 Dimensions for Type III Rat Guards

Size	Dimensions (see Fig. 2), mm		Number of Prongs in Complete Sleeve (See 5.2.2.2)	Thickness of Disk, Sleeve, and Guide, mm	
	A	B		Steel, Galvanized Sheet	Aluminum Alloy Sheet
75	75	1000	6	1.4	1.6
125	125	1300	10	1.4	1.6
200	200	1300	16	1.4	1.6