



Designation: F 936 – 85 (Reapproved 1991)

Standard Specification for Chocks, Panama, Mooring Cast Steel¹

This standard is issued under the fixed designation F 936; 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 (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification covers the principal dimensions and materials of chocks installed in ships to comply with the regulations of the Panama Canal.

1.2 Chocks can be used with either wire rope, fibre, or synthetic ropes.

1.3 Chocks are for mounting directly on a deck, doubler, or for mounting in a bulwark.

1.4 To meet Panama Canal Company regulations the radius of contact surfaces of lines must be 7 in.

1.5 The values stated in inch-pound units are to be regarded as the standard.

2. Referenced Documents

2.1 ASTM Standard:

A 27/A 27M Specification for Steel Castings, Carbon, for General Application²

2.2 ANSI Standard:

B 46.1 Surface Texture³

3. Descriptions of Terms Specific to This Standard

3.1 *bulwark*—a structural enclosure along the edge of the ship to serve as a rail.

3.2 *closed chock*—a metal flared ring-like fitting mounted on a ship through which mooring lines pass to tow or moor a ship.

3.3 *mooring ring or pipe*—a chock mounted in the bulwark and conforming to Type II or IV.

3.4 *rope contact area*—that part of the fitting in contact with the rope in normal mooring operations.

4. Classification

4.1 The size of the chock shall be identified by the nominal size “L” and “H” of the opening as shown in Tables 1 and 2. Sizes larger than 16 in. by 10 in. may be considered as double chocks.

4.2 Chocks are furnished in types as follows:

4.2.1 *Type I*—Deck mounted, as shown in Fig. 1, and conforms to all dimensions in Table 1.

4.2.2 *Type II*—Bulwark mounted, as shown in Fig. 2, and conforms to all dimensions in Table 2.

4.2.3 *Type III*—Deck mounted conforming only to dimensions “L”, “H”, and 7 in. radius at entrance, as shown in Fig. 1 and Table 1 and the requirements of Sections 6 to 10.

4.2.4 *Type IV*—Bulwark mounted conforming only to dimensions “L”, “H”, and 7 in. radius at entrance, as shown in Fig. 2 and Table 2 and the requirements of Sections 6 to 10.

4.3 Chocks shall be furnished in either of the following grades:

4.3.1 *Grade 1*—Surface finish shall be in the as cast condition.

4.3.2 *Grade 2*—Surface finish in way of rope contact shall be in accordance with 7.2.

5. Ordering Information

5.1 Orders for chocks under this specification shall include this standard date, and the following:

5.1.1 Quantity (number) of chocks required,

5.1.2 Size (opening, $L \times H$),

5.1.3 Type and grade,

5.1.4 Prime paint and coating, if any (see 7.3), and

5.1.5 Marking.

6. Materials and Manufacture

6.1 Material shall be cast steel in accordance with Specification A 27/A 27M, Grade 60-30.

6.2 For Types III and IV the manufacturer shall certify that chock is in compliance with Panama Canal requirements.

6.3 Casting shall be smooth, fine grain, and free of cracks, hot tears, and blow holes, detrimental to end use. Defects having an area larger than 1 in.² and a depth of more than 10 % of the thickness in way thereof will be cause for rejection. Small defects in way of rope contact shall be welded and finished smooth.

6.4 All excess material, vents, and gates shall be removed and finished smooth to match the surrounding surface.

6.5 Limber or drain holes shall be $\frac{3}{8}$ in. in diameter and provided in webs and brackets to prevent water entrapment.

6.6 Type I shall be in accordance with Fig. 1 and Table 1.

6.7 Type II shall be in accordance with Fig. 2 and Table 2.

7. Workmanship, Finish, and Appearance

7.1 Casting shall be sand, grit, or shot blasted to a gray metal finish to remove all loose scale. All mold flashing shall be removed and radii shall be fair so as to prevent an even surface.

7.2 Surface of Grade 2 chocks shall have a rope contact surface of average surface roughness of 125 μ m. (0.003 mm) or less, in accordance with ANSI standard B46.1 so as to reduce abrasive damage to fibre and synthetic ropes.

¹ This specification is under the jurisdiction of ASTM Committee F-25 on Shipbuilding and is the direct responsibility of Subcommittee F25.03 on Outfitting.

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² *Annual Book of ASTM Standards*, Vol 01.02.

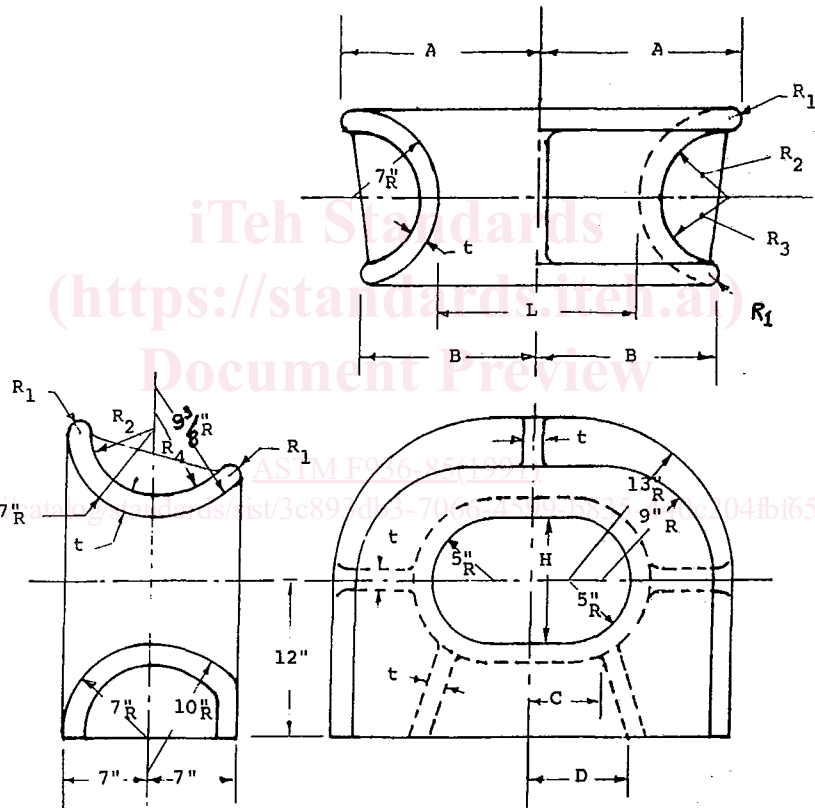
³ Available from American National Standards Institute, 11 West 42nd St., 13th Floor, New York, NY 10036.

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TABLE 1 Dimension Requirements (see Fig. 1)

NOTE 1—Tolerances on all dimensions over 8 in. is $\pm 1/4$ in. (6 mm).
 NOTE 2—For all dimensions less than 8 in. tolerance is $\pm 1/8$ in. (3 mm).

Length x Height	A	B	T ₂	R ₂	R ₃	R ₄	T ₁	Estimated Weight, lb	C	D
12 x 10	14	12 ^{5/8}	3/4	5 ^{9/16}	5 1/2	7 ^{11/16}	1 1/4	420	4	6
(305 x 254)	(356)	(321)	(19)	(142)	(140)	(195)	(32)		(102)	(152)
14 x 10	15	13 ^{5/8}	3/4	5 1/2	5 ^{7/16}	7 ^{9/16}	1 5/8	455	5	7
(356 x 254)	(381)	(346)	(19)	(140)	(138)	(192)	(35)		(127)	(178)
16 x 10	16	14 ^{3/4}	7/8	5 ^{9/8}	5 1/4	7 1/4	1 ^{7/16}	520	6	8
(406 x 254)	(406)	(375)	(22)	(137)	(135)	(185)	(37)		(152)	(203)
18 x 10	17	15 ^{3/4}	7/8	5 1/4	5 ^{9/16}	7 ^{9/16}	1 1/2	550	7	9
(457 x 254)	(431)	(400)	(22)	(133)	(132)	(182)	(38)		(178)	(229)
20 x 10	18	16 ^{3/4}	1 ^{5/16}	5 ^{9/16}	5 1/8	7 ^{1/16}	1 ^{9/16}	605	8	10
(508 x 254)	(457)	(425)	(24)	(132)	(130)	(179)	(40)		(203)	(254)



NOTE 1—All fillet radii to be equal to "t".
 NOTE 2—All "t" dimensions are considered minimum and increased to the draft of the mold.

FIG. 1 Configuration of Deck Mounted Chocks