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Standard Specification for Chocks, Ship Mooring, Cast Steel¹

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1. Scope

1.1 This specification covers the principal dimensions and materials of closed chocks for installation on ships and used for mooring.

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 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 moor a ship.

3.3 *mooring ring or pipe*—a chock mounted in the bulwark and conforming to Type II and 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 chocks will be identified by the nominal size “L” and “H” of the opening as shown in Tables 1 and 2.

4.2 Chocks are furnished in types as follows:

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

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

4.2.3 *Type III*—Deck mounted, conforming only to dimensions “L” and “H” of Table 1 and is of adequate strength to at least meet the component force values indicated in Table 3, and meets the requirements of sections 6 to 10.

4.2.4 *Type IV*—Bulwark mounted, conforming only to dimensions “L” and “H” of Table 2 and is of adequate strength to at least meet the component force values indicated in Table 3, and meets 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 8.2.

5. Ordering Information

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

5.1.1 Descriptive information (size, material, etc.) of mooring lines,

5.1.2 Quantity (number) of chocks required,

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

5.1.4 Type and grade,

5.1.5 Prime paint and coating, if any (see 8.3), and

5.1.6 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 strength of the chock will at least meet the component forces tabulated in Table 3, and that it is suitable for the mooring lines specified in the ordering information.

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. Smaller 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 $\frac{5}{8}$ 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 Tables 1 and 3.

6.7 Type II shall be in accordance with Fig. 2 and Tables 2 and 3.

7. Strength Requirements

7.1 As an aid to selecting the proper size of chock, the three component forces must be established based upon the breaking strength of the mooring line and anticipated directional orientation of the line as it is lead inboard, as well as outboard, to the plane of the chock. Such values should

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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 dimensions less than 8 in. tolerance is $\pm 1/8$ in. (3 mm).

Length $\times$ Height	A	B	C	D	E	R ₁	R ₂	R ₃	R ₄	t ₁	t ₂	Estimated Weight, lb
6 $\times$ 4	4 1/2	5 1/8	2 1/4	3	3 1/2	2	4 1/8	1 3/4	5/16	5/8	1/2	35
(152 $\times$ 102)	(114)	(130)	(57)	(76)	(89)	(51)	(105)	(44)	(8)	(16)	(13)	
8 $\times$ 6	6 1/2	6 3/4	3 1/4	4	4 3/4	3	5 3/4	2 3/8	3/8	3/4	5/8	75
(203 $\times$ 152)	(165)	(171)	(83)	(102)	(121)	(76)	(146)	(60)	(10)	(19)	(16)	
10 $\times$ 8	8	8 1/2	4	5	6 1/4	4	7 1/2	3 1/8	1/2	1	3/4	165
(254 $\times$ 203)	(203)	(216)	(102)	(127)	(159)	(102)	(191)	(79)	(13)	(25)	(19)	
12 $\times$ 10	10	10 1/2	4 1/2	6	8	5	9 1/2	4	9/16	1 1/8	7/8	300
(305 $\times$ 254)	(254)	(267)	(114)	(152)	(203)	(127)	(241)	(102)	(14)	(29)	(22)	
14 $\times$ 10	10 1/2	11 7/8	5	7	8 3/4	5	9 7/8	4 3/8	5/8	1 1/4	7/8	385
(355 $\times$ 254)	(267)	(302)	(127)	(178)	(222)	(127)	(251)	(111)	(16)	(32)	(22)	
16 $\times$ 10	11	13 1/4	5 1/2	7 1/2	9 1/2	5	10 1/4	4 3/4	5/8	1 1/4	1	450
(406 $\times$ 254)	(279)	(337)	(140)	(191)	(241)	(127)	(260)	(121)	(16)	(32)	(25)	
18 $\times$ 10	11 1/2	14 3/4	6	8	10 1/4	5	10 3/4	5 1/8	1 1/8	1 3/8	1 1/8	575
(457 $\times$ 254)	(292)	(375)	(152)	(203)	(260)	(127)	(273)	(130)	(17)	(35)	(29)	
20 $\times$ 10	12	16 1/4	7	9	11	5	11 1/4	5 1/2	3/4	1 1/2	1 1/4	710
(508 $\times$ 254)	(305)	(413)	(178)	(229)	(279)	(127)	(286)	(140)	(19)	(38)	(32)	

TABLE 2 Dimensions Requirement (see Fig. 2)

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

Length $\times$ Height	A	B	C	D	E	R ₁	R ₂	R ₃	R ₄	R ₅	R ₆	t ₁	t ₂	Estimated Weight, lb
6 $\times$ 4	5 1/8	4	5/16	3/8	3 1/2	2	4 1/8	1 3/4	5/16	3	37/16	5/8	1/2	20
(236 $\times$ 102)	(130)	(102)	(8)	(10)	(89)	(51)	(105)	(44)	(8)	(76)	(87)	(16)	(13)	
8 $\times$ 6	6 3/4	5 3/8	3/8	1/2	4 3/4	3	5 3/4	2 3/8	3/8	4 3/8	37/8	3/4	5/8	45
(203 $\times$ 236)	(171)	(137)	(10)	(13)	(121)	(76)	(146)	(60)	(10)	(111)	(98)	(19)	(16)	
10 $\times$ 8	8 1/2	6 7/8	1/2	5/8	6 1/4	4	7 1/2	3 1/8	1/2	5 7/8	4 11/16	1	3/4	100
(254 $\times$ 203)	(216)	(175)	(13)	(16)	(159)	(102)	(191)	(79)	(13)	(149)	(119)	(25)	(19)	
12 $\times$ 10	10 1/2	8 1/2	9/16	3/4	8	5	9 1/2	4	9/16	7 1/2	5 1/2	1 1/8	7/8	180
(305 $\times$ 254)	(267)	(216)	(14)	(19)	(203)	(127)	(241)	(102)	(14)	(190)	(140)	(29)	(22)	
14 $\times$ 10	11 7/8	9 3/4	5/8	7/8	8 3/4	5	9 7/8	4 3/8	5/8	7 3/4	6 1/8	1 1/4	7/8	240
(356 $\times$ 254)	(302)	(248)	(16)	(22)	(222)	(127)	(251)	(111)	(16)	(197)	(156)	(32)	(22)	
16 $\times$ 10	13 1/4	11	5/8	7/8	9 1/2	5	10 1/4	4 3/4	5/8	8	6 5/16	1 1/4	1	290
(406 $\times$ 254)	(337)	(279)	(16)	(22)	(241)	(127)	(260)	(121)	(16)	(203)	(160)	(32)	(25)	
18 $\times$ 10	14 3/4	12 1/4	1 1/16	1	10 1/4	5	10 3/4	5 1/8	1 1/16	8 1/4	6 13/16	1 3/8	1 1/8	375
(457 $\times$ 254)	(375)	(318)	(17)	(25)	(260)	(127)	(273)	(130)	(17)	(210)	(173)	(35)	(29)	
20 $\times$ 10	16 1/4	13 1/2	3/4	1	11	5	11 1/4	5 1/2	3/4	8 1/2	7 3/8	1 1/2	1 1/4	470
(508 $\times$ 254)	(413)	(343)	(19)	(25)	(279)	(127)	(286)	(140)	(19)	(216)	(187)	(38)	(32)	