



Standard Specification for Anodes, Sacrificial Zinc Alloy¹

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1. Scope

1.1 This specification covers the requirements for zinc anodes in the form of slabs, plates, discs, and rods for corrosion protection (cathodic protection) of metals and alloys.

1.2 The anodes are primarily intended to reduce corrosion of surface ship and submarine hulls, steel and aluminum equipment and structures, sea chests, sonar domes, and the seawater side of condensers and other heat exchangers.

1.3 The values stated in inch-pound units are to be regarded as standard. The metric (SI) units, given in parentheses, are for information purposes only and may be approximate.

1.4 *This standard does not purport to address the safety concerns 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 *Order of Precedence*—In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

2.2 *ASTM Standards*:²

A36/A36M Specification for Carbon Structural Steel

B21/B21M Specification for Naval Brass Rod, Bar, and Shapes

B103/B103M Specification for Phosphor Bronze Plate, Sheet, Strip, and Rolled Bar

D3951 Practice for Commercial Packaging

E290 Test Methods for Bend Testing of Material for Ductility

E536 Test Methods for Chemical Analysis of Zinc and Zinc Alloys

¹ This specification is under the jurisdiction of ASTM Committee F25 on Ships and Marine Technology and is the direct responsibility of Subcommittee F25.07 on General Requirements.

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² 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.

2.3 *Military Standards*:³

MIL-STD-129 Marking for Shipment and Storage

MIL-STD-1186 Cushioning, Anchoring, Bracing, Blocking, and Waterproofing; With Appropriate Test Methods

2.4 *Military Specification*:³

MIL-P-15011 Pallets Material Handling, Wood Post Construction, 4-Way Entry

2.5 *Federal Specifications*:³

PPP-B-601 Boxes, Wood, Cleated Plywood

PPP-B-621 Boxes, Wood, Nailed and Lock-Corner

PPP-B-636 Boxes, Shipping, Fiberboard

2.6 *American National Standards Institute Standards*:

ANSI/ASME B1.20.1 Pipe Threads, General Purpose (Inch)

ANSI/ASQ Z1.4 Sampling Procedures and Tables for Inspection by Attributes

3. Classification

3.1 The anodes shall be of the following classes and types, as specified (see 4.1.2):

3.1.1 *Class 1*—Cast-in cores:

3.1.1.1 *Type ZHS*—Zinc, hull slab, steel straps, 23 and 42-lb (10 and 19-kg) sizes.

3.1.1.2 *Type ZHB*—Zinc, hull slab, brass straps, 23-lb (10-kg) size.

3.1.1.3 *Type ZHC*—Zinc, hull slab, core strap, 23 and 42-lb (10 and 19-kg) sizes.

3.1.1.4 *Type ZSS*—Zinc, submarine slab, steel strap, 12 and 24-lb (5 and 11-kg) sizes.

3.1.1.5 *Type ZTS*—Zinc, teardrop shape, steel strap, 5-lb (2-kg) size.

3.1.1.6 *Type ZEP*—Zinc, heat exchanger or fair water disc, (pipe core or pipe bushing core):

Style A square slab, 9-lb (4-kg) size

Style B circular slab, various sizes

Style C semicircular slab, 23-lb (10-kg) size

3.1.1.7 *Type ZBP*—Zinc, bar, pipe core, 8-lb (4-kg) size.

3.1.1.8 *Type ZDM*—Zinc, segmented disc, machine formed interlocking core, various sizes.

3.1.2 *Class 2*—Plain, no cores;

³ Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098, <http://www.dodssp.daps.mil>.