



Standard Specification for Centrifugal Pump, Shipboard Use¹

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1. Scope

1.1 This specification covers the requirements applicable to the design and construction of centrifugal pumps for shipboard application. The three classes of service covered by this specification are as follows:

- 1.1.1 Class 1—Freshwater,
- 1.1.2 Class 2—Seawater, and
- 1.1.3 Class 3—Hydrocarbon pumps (less than 1500 SSU).

1.2 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are provided for information purposes only.

2. Referenced Documents

2.1 ASTM Standards:²

- A 36/A 36M Specification for Carbon Structural Steel
- A 193/A 193M Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service
- A 194/A 194M Specification for Carbon and Alloy Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both
- A 276 Specification for Stainless Steel Bars and Shapes
- A 494/A 494M Specification for Castings, Nickel and Nickel Alloy
- A 582/A 582M Specification for Free-Machining Stainless Steel Bars
- A 743/A 743M Specification for Castings, Iron-Chromium, Iron-Chromium-Nickel, Corrosion-Resistant, for General Application
- A 747/A 747M Specification for Steel Castings, Stainless, Precipitation Hardening
- A 890/A 890 Standard Specification for Castings, Iron-Chromium-Nickel-Molybdenum Corrosion Resistant, Duplex (Austenitic/Ferritic) for General Applications
- B 148 Specification for Aluminum-Bronze Sand Castings
- B 164 Specification for Nickel-Copper Alloy Rod, Bar, and Wire

B 271 Specification for Copper-Base Alloy Centrifugal Castings

B 369 Specification for Copper-Nickel Alloy Castings

B 505 Specification for Copper-Base Alloy Continuous Castings

B 584 Specification for Copper Alloy Sand Castings for General Applications

F 468 Specification for Nonferrous Bolts, Hex Cap Screws, and Studs for General Use

F 1511 Specification for Mechanical Seals for Shipboard Pump Applications

2.2 ANSI Standards:

B1 ISO Metric Screw Threads (ANSI-B1 Report)³

B1.1 Unified Screw Threads³

B16.1 Cast Iron Pipe Flanges and Flange Fittings³

B16.5 Steel Pipe Flanges, Flanged Valves and Fittings, 150, 300, 400, 600, 900, 1500 and 2500 lb.³

B16.11 Forged Steel Fittings, Socket Welding and Threaded³

B16.24 Bronze Flanges and Flanged Fittings, 150, 300lb³

2.3 Hydraulic Institute Standards:

ANSI/HI 1.1-1.5 American National Standard for Centrifugal Pumps for Nomenclature, Definitions, Applications and Operation³

ANSI/HI 1.6 American National Standard for Centrifugal Pump Tests³

ANSI/HI 9.1-9.6 American National Standard for Pumps—General Guidelines for Types, Definitions, Applications and Sound Measurements³

2.4 AFBMA Standards:

9 Load Ratings and Fatigue Life for Ball Bearings⁴

11 Load Ratings and Fatigue Life for Roller Bearings⁴

2.5 ISO Standards:

ISO 9001 Quality Systems and Quality Assurance—Design/Development, Production, Installation and Service³

3. Terminology

3.1 Definitions:

3.1.1 *best efficiency point (BEP), n*—the capacity and head in which the pump efficiency is the highest.

¹ This specification is under the jurisdiction of Committee F25 on Ships and Marine Technology and is the direct responsibility of Subcommittee F25.11 on Machinery and Piping Systems.

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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.

³ Available from American National Standards Institute, 25 W. 43rd St., 4th Floor, New York, NY 10036.

⁴ Anti-Friction Bearing Manufacturers Association, Inc., 1101 Connecticut Ave., N.W., Suite 700, Washington, DC 20036.