



Standard Practice for Selection and Application of Piping System Materials¹

This standard is issued under the fixed designation F1155; 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 practice is intended as a guide to shipbuilders, shipowners, and design agents for use in the preparation of piping system material schedules for commercial ship design and construction.

1.2 The materials and limitations listed in **Tables 1-28** meet the minimum requirements of the U.S. Coast Guard and the American Bureau of Shipping and, except for titanium, should be considered to be the minimum acceptable materials in regard to material, design, and testing. This document is not intended to limit the selection of material strictly to those listed. Other equal or superior materials may be used provided that they are acceptable to the regulatory bodies and classification societies.

NOTE 1—Titanium has been added as its use in fresh and sea water systems is becoming more common.

2. Referenced Documents

2.1 ASTM Standards:²

- A53/A53M** Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
- A105/A105M** Specification for Carbon Steel Forgings for Piping Applications
- A106/A106M** Specification for Seamless Carbon Steel Pipe for High-Temperature Service
- A134** Specification for Pipe, Steel, Electric-Fusion (Arc)-Welded (Sizes NPS 16 and Over)
- A139/A139M** Specification for Electric-Fusion (Arc)-Welded Steel Pipe (NPS 4 and Over)
- A178/A178M** Specification for Electric-Resistance-Welded Carbon Steel and Carbon-Manganese Steel Boiler and Superheater Tubes
- A179/A179M** Specification for Seamless Cold-Drawn Low-Carbon Steel Heat-Exchanger and Condenser Tubes

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

Current edition approved May 1, 2015. Published June 2015. Originally approved in 1988. Last previous edition approved in 2010 as F1155 – 10. DOI: 10.1520/F1155-10R15.

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.

- A181/A181M** Specification for Carbon Steel Forgings, for General-Purpose Piping
- A182/A182M** Specification for Forged or Rolled Alloy and Stainless Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service
- A192/A192M** Specification for Seamless Carbon Steel Boiler Tubes for High-Pressure Service
- A193/A193M** Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications
- A194/A194M** Specification for Carbon Steel, Alloy Steel, and Stainless Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both
- A213/A213M** Specification for Seamless Ferritic and Austenitic Alloy-Steel Boiler, Superheater, and Heat-Exchanger Tubes
- A214/A214M** Specification for Electric-Resistance-Welded Carbon Steel Heat-Exchanger and Condenser Tubes
- A216/A216M** Specification for Steel Castings, Carbon, Suitable for Fusion Welding, for High-Temperature Service
- A234/A234M** Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service
- A242/A242M** Specification for High-Strength Low-Alloy Structural Steel
- A249/A249M** Specification for Welded Austenitic Steel Boiler, Superheater, Heat-Exchanger, and Condenser Tubes
- A283/A283M** Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
- A307** Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength
- A320/A320M** Specification for Alloy-Steel and Stainless Steel Bolting for Low-Temperature Service
- A335/A335M** Specification for Seamless Ferritic Alloy-Steel Pipe for High-Temperature Service
- A351/A351M** Specification for Castings, Austenitic, for Pressure-Containing Parts
- A387/A387M** Specification for Pressure Vessel Plates, Alloy Steel, Chromium-Molybdenum
- A395/A395M** Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures