



Standard Specification for Performance of Piping and Tubing Mechanically Attached Fittings¹

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This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 This specification establishes the performance characteristics required for mechanically attached fittings (MAFs) for use in piping and tubing systems. These fittings directly attach to pipe or tube by mechanical deformation of the pipe or tube or fitting, or a combination thereof, creating a seal and a restrained joint. The seal may be created via the mechanical deformation or created independently. Successful completion of the tests described constitutes completion of the technical portion of the qualification process.

1.2 Supplementary requirements are provided for use when additional testing or inspection is desired. These shall apply only when specified in part or whole by the purchaser in the order. Unless otherwise specified, U.S. Navy contracts shall invoke the supplementary requirements in whole.

1.3 Unless specific MAF types are specified, the term “MAF” shall apply to all types described herein.

1.4 The tests specified in Section 13 and described in **Annex A1** and Supplementary Requirements are applicable only to ascertain the performance characteristics of MAFs. These tests are not intended for use in the evaluation of non-MAF products.

1.5 A fire performance test is specified in Supplementary Requirement S7. This test provides general guidelines to determine the responsiveness of MAFs when subjected to fire. This test should not be considered for use to evaluate non-MAF products.

1.6 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.7 The following safety hazards caveat applies only to the tests listed in Section 13 and the tests described in the Supplementary Section and the Annex of this specification:

This standard does not purport to address all of the safety concerns, if any, 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 ASTM Standards:²

A105/A105M Specification for Carbon Steel Forgings for Piping Applications

A106/A106M Specification for Seamless Carbon Steel Pipe for High-Temperature Service

A108 Specification for Steel Bar, Carbon and Alloy, Cold-Finished

A109/A109M Specification for Steel, Strip, Carbon (0.25 Maximum Percent), Cold-Rolled

A167 Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip (Withdrawn 2014)³

A182/A182M Specification for Forged or Rolled Alloy and Stainless Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service

A213/A213M Specification for Seamless Ferritic and Austenitic Alloy-Steel Boiler, Superheater, and Heat-Exchanger Tubes

A234/A234M Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service

A240/A240M Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications

A249/A249M Specification for Welded Austenitic Steel Boiler, Superheater, Heat-Exchanger, and Condenser Tubes

A262 Practices for Detecting Susceptibility to Intergranular

¹ This specification 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.

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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 The last approved version of this historical standard is referenced on www.astm.org.