



Designation: A 694/A 694M – 00

Standard Specification for Carbon and Alloy Steel Forgings for Pipe Flanges, Fittings, Valves, and Parts for High-Pressure Transmission Service¹

This standard is issued under the fixed designation A 694/A 694M; 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 specification covers forged or rolled steel pipe flanges, forged fittings, valves, and parts suitable for use with high-strength transmission-service pipe. Included are flanges, fittings, and similar parts ordered either to dimensions specified by the purchaser or to ASME dimensional standards referenced in Section 2.

1.2 Several grades of material, based on minimum yield strength requirements, are covered, as indicated in Table 1.

1.3 Supplementary Requirements are provided. Supplementary Requirement S 1 is provided for use when purchaser approval is required for repair welding.

1.4 This specification is expressed in both inch-pound units and in SI units. However, unless the order specifies the applicable “M” specification designation (SI units), the material shall be furnished to inch-pound units.

1.5 The values stated in either inch-pound units or SI units are to be regarded separately as standard. Within the text, the SI units are shown in brackets. The values stated in each system are not exact equivalents; therefore, each system must be used independently of the other. Combining values from the two systems may result in nonconformance with the specification.

2. Referenced Documents

2.1 In addition to those reference documents listed in Specification A 961, the following list of standards apply to this specification:

2.2 ASTM Standards:

A 53/A 53M Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless²

A 106 Specification for Seamless Carbon Steel Pipe for High-Temperature Service²

A 381 Specification for Metal-Arc-Welded Steel Pipe for Use with High-Pressure Transmission Systems²

A 707/A 707M Specification for Forged Carbon and Alloy

TABLE 1 Tensile Requirements

Grade	Yield Strength (0.2 % Offset), min, ksi [MPa]	Tensile Strength, min, ksi [MPa]	Elongation in 2 in. or 50 mm, min %
F42	42 [290]	60 [415]	20
F46	46 [315]	60 [415]	20
F48	48 [330]	62 [425]	20
F50	50 [345]	64 [440]	20
F52	52 [360]	66 [455]	20
F56	56 [385]	68 [470]	20
F60	60 [415]	75 [515]	20
F65	65 [450]	77 [530]	20
F70	70 [485]	82 [565]	18

Steel Flanges for Low-Temperature Service²

A 788 Specification for Steel Forgings, General Requirements³

A 961 Specification for Common Requirements for Steel Flanges, Forged Fittings, Valves, and Parts for Piping Applications²

2.3 ASME Standards:

ASME B 16.5 Steel Pipe Flanges and Flanged Fittings⁴

ASME B 16.9 Steel Butt-Welding Fittings⁴

ASME B 16.10 Face-to-Face and End-to-End Dimensions of Ferrous Valves⁴

ASME B 16.11 Forged Steel Fittings, Socket Welding and Threaded⁴

ASME B 16.28 Wrought Steel Butt-Welding Short Radius Elbows⁴

ASME B 16.47 Large Diameter Steel Flanges⁴

B and PV Code Section IX, Welding Qualifications⁴

2.4 MSS Standards:⁵

MSS SP-44 Standard for Steel Pipe Line Flanges

MSS SP-75 Specification for High-Test Welding Fittings

MSS SP-95 Swage (d) Nipples and Bull Plugs

MSS SP-97 Integrally Reinforced Forged Branch Outlet Fittings

2.5 API Standard:

¹ This specification is under the jurisdiction of ASTM Committee A-1 on Steel, Stainless Steel, and Related Alloys, and is the direct responsibility of Subcommittee A01.22 on Valves and Fittings.

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² Annual Book of ASTM Standards, Vol 01.01.

³ Annual Book of ASTM Standards, Vol 01.05.

⁴ Available from American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10016-5990.

⁵ Available from the Manufacturers' Standardization Society of the Valve and Fittings Industry, 127 Park St., Northeast, Vienna, VA 22180.