



Standard Specification for Carbon and Low-Alloy Steel Forgings, Requiring Notch Toughness Testing for Piping Components¹

This standard is issued under the fixed designation A 350/A 350M; 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.

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

1. Scope*

1.1 This specification² covers several grades of carbon and low-alloy steel forged or ring-rolled flanges, forged fittings and valves intended primarily for low-temperature service and requiring notch toughness testing. They are made to specified dimensions, or to dimensional standards, such as the ASME and API Specifications referenced in Section 2. Although this specification covers some piping components machined from rolled bar and seamless tubular materials (see 5.3.3), it does not cover raw material produced in these product forms.

1.2 No limitation on size is intended beyond the ability of the manufacturer to obtain the specified requirements. However, Class 3 of Grade LF787 is only available in the quenched-and-precipitation heat treated condition.

1.3 Supplementary requirements are provided for use when additional testing or inspection is desired. These shall apply only when specified by the purchaser in the order.

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.

NOTE 1—Refer to Test Methods and Definitions A 370 for notes on significance of notched-bar impact testing.

¹ This specification is under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel and Related Alloys and is the direct responsibility of Subcommittee A01.22 on Steel Forgings and Wrought Fittings for Piping Applications and Bolting Materials for Piping and Special Purpose Applications.

Current edition approved Nov. 1, 2007. Published December 2007. Originally approved in 1952. Last previous edition approved in 2004 as A 350/A 350M – 04a.

² For ASME Boiler and Pressure Vessel Code applications see related Specification SA-350 in Section II of that Code.

2. Referenced Documents

2.1 ASTM Standards:³

A 370 Test Methods and Definitions for Mechanical Testing of Steel Products

A 788/A 788M Specification for Steel Forgings, General Requirements

A 961/A 961M Specification for Common Requirements for Steel Flanges, Forged Fittings, Valves, and Parts for Piping Applications

2.2 ASME Standards:

B 16.5 Steel Pipe Flanges and Flanged Fittings⁴

B 16.9 Factory-Made Wrought Steel Butt-Welding Fittings⁴

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

B 16.11 Forged Steel Fittings, Socket-Welding and Threaded⁴

B 16.30 Unfired Pressure Vessel Flange Dimensions⁴

B 16.34 Valves-Flanged, Threaded, and Welding End⁴

B 16.47 Large Diameter Steel Flanges⁴

2.3 ASME Boiler and Pressure Vessel Code:

Section IX Welding Qualifications²

2.4 AWS Standards:

A 5.1 Mild Steel Covered Arc-Welding Electrodes⁵

A 5.5 Low-Alloy Steel Covered Arc-Welding Electrodes⁵

2.5 API Standards:⁶

600 Steel Gate Valves with Flanged or Butt-Welding Ends

602 Compact Design Carbon Steel Gate Valves for Refinery Use

³ 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.

⁴ Available from American Society of Mechanical Engineers (ASME), ASME International Headquarters, Three Park Ave., New York, NY 10016-5990, <http://www.asme.org>.

⁵ Available from American Welding Society (AWS), 550 NW LeJeune Rd., Miami, FL 33126, <http://www.aws.org>.

⁶ Available from American Petroleum Institute (API), 1220 L. St., NW, Washington, DC 20005-4070, <http://api-ec.api.org>.

*A Summary of Changes section appears at the end of this standard.