Designation: A 727/A 727M – 02

# Standard Specification for Carbon Steel Forgings for Piping Components with Inherent Notch Toughness[1]

This standard is issued under the fixed designation A 727/A 727M; 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[2] covers forged carbon steel piping components intended primarily for service in pressure piping systems from −20 to +650°F [−30 to +345°C] where inherent notch toughness is desired, but where notch toughness testing is not required. Included are forged or ring-rolled flanges, forged fittings, and valves made to specified dimensions, or to dimensional standards such as the ASME and API specifications referenced in Section 2.

1.2 This specification is limited to forgings with maximum finished section thicknesses no larger than 2 in. [51 mm].

1.3 It shall be the responsibility of the purchaser to determine whether material meeting the requirements of this specification is satisfactory for the service application.

1.4 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.

NOTE 1—There are no provisions for impact testing in this specification. When impact testing is required, refer to Specification A 350/A 350M.

1.5 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.

1.6 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 350/A 350M Specification for Carbon and Low-Alloy Steel Forgings, Requiring Notch Toughness Testing for Piping Compounds[3]

A 370 Test Methods and Definitions for Mechanical Testing of Steel Products[4]

A 788 Specification for Steel Forgings, General Requirements[5]

A 961 Specification for Common Requirements for Steel Flanges, Forged Fittings, Valves, and Parts for Piping Applications[3]

E 59 Practice for Sampling Steel and Iron for Determination of Chemical Composition[6]

2.3 *ASME Boiler and Pressure Vessel Codes:*[7]

Section II, Material Specifications, Part C

SFA 5.5 Low-Alloy Steel Covered Arc-Welding Electrodes

B 16.5 Steel Pipe Flanges and Flanged Fittings

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

B 16.11 Forged Steel Fittings, Socket-Welding and Threaded

B 16.30 Unfired Pressure Vessel Flange Dimensions

2.4 *API Standards:*[8]

600 Steel Gate Valves with Flanged or Butt-Welding Ends

602 Compact Design Carbon Steel Gate Valves for Refinery Use

605 Large Diameter Carbon Steel Flanges

[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.

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[2] For ASME Boiler and Pressure Vessel Code applications see related Specification SA-727 in Section II of that Code.

[3] *Annual Book of ASTM Standards*, Vol 01.01.

[4] *Annual Book of ASTM Standards*, Vol 01.03.

[5] *Annual Book of ASTM Standards*, Vol 01.05.

[6] Discontinued; see 1995 *Annual Book of ASTM Standards*, Vol 03.05.

[7] Available from American Society of Mechanical Engineers (ASME), ASME International Headquarters, Three Park Ave., New York, NY 10016-5990.

[8] Available from The American Petroleum Institute (API), 1220 L. St., NW, Washington, DC 20005.

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

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