Designation: A592/A592M – 10 (Reapproved 2020)

Standard Specification for High-Strength Quenched and Tempered Low-Alloy Steel Forged Parts for Pressure Vessels[1]

This standard is issued under the fixed designation A592/A592M; 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 high-strength quenched and tempered low-alloy steel forged parts for pressure vessels. The maximum thickness of forgings under this specification shall be 1½ in. [38 mm] for Grade A, and 4 in. [100 mm] for Grades E and F.

NOTE 1—These grades are similar to corresponding grades in Specification A517/A517M.

1.2 Although no provision is made for supplementary requirements in this standard, the supplementary requirements in Specification A788/A788M may be considered by the purchaser.

1.3 Welding technique is of fundamental importance and it is presupposed that welding procedures will be in accordance with approved methods for the class of material used.

1.4 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system are not necessarily exact equivalents; therefore, to ensure conformance with the standard, each system shall be used independently of the other, and values from the two systems shall not be combined.

1.5 Unless the order specifies the applicable "M" specification designation, the material shall be furnished to the inch-pound units.

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[3]

A370 Test Methods and Definitions for Mechanical Testing of Steel Products

A517/A517M Specification for Pressure Vessel Plates, Alloy Steel, High-Strength, Quenched and Tempered

A788/A788M Specification for Steel Forgings, General Requirements

E112 Test Methods for Determining Average Grain Size

2.2 *ASME Code:*[4]

ASME Boiler and Pressure Vessel Code

3. Ordering Information and General Requirements

3.1 In addition to the ordering information required by Specification A788/A788M, the purchaser shall include with the inquiry and order the following information:

3.1.1 A detailed drawing, a sketch, or written description of the forging.

3.1.2 The charpy impact test temperature if a test temperature lower than 32 °F [0 °C] is required.

3.1.3 Additional heat treatment cycles to be applied to the mechanical test specimens following removal from the heat-treated forging or special forged test block.

3.1.4 Required supplementary requirement(s) from Specification A788/A788M.

3.2 Material supplied to this specification shall conform to the requirements of Specification A788/A788M, which outlines additional ordering information, manufacturing requirements, testing and retesting methods and procedures, marking, certification, product analysis variations, and additional supplementary requirements. Failure to comply with the requirements of Specification A788/A788M constitutes nonconformance with this specification.

[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 A01.06 on Steel Forgings and Billets.

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[2] For ASME Boiler and Pressure Vessel Code applications, see related Specification SA-592/SA-592M in Section II of that Code.

[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, Two Park Ave., New York, NY 10016-5990, http://www.asme.org.

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