



Standard Specification for High Strength Steel Castings in Heavy Sections¹

This standard is issued under the fixed designation A1001; 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 cast alloy steels in the normalized and tempered or quenched and tempered condition, in section sizes through 37 in. (940 mm), suitable for high strain gradient conditions such as those encountered in hooks, shackles, support frames, and other lifting devices. The classes of steel in this specification are weldable only with qualified procedures.

1.2 Section range and class selection will depend on design and service conditions. Users should note that this specification contemplates mechanical property gradients.

1.3 The values stated in 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 non-conformities with the specification. Inch-pound units are applicable for material ordered to this Specification and SI units for material ordered to this Specification.

1.4 If, by agreement, castings are to be supplied in a partially completed condition, that is, all of the provisions of the product specification have not been filled, then the material marking (see Section 15) and certification (see Section 14) are to reflect the extent to which the product specification requirements have been met.

2. Referenced Documents

2.1 ASTM Standards:²

A370 Test Methods and Definitions for Mechanical Testing of Steel Products

A609/A609M Practice for Castings, Carbon, Low-Alloy, and Martensitic Stainless Steel, Ultrasonic Examination Thereof

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 A01.18 on Castings.

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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.

A703/A703M Specification for Steel Castings, General Requirements, for Pressure-Containing Parts
E94 Guide for Radiographic Examination
E165 Practice for Liquid Penetrant Examination for General Industry
E709 Guide for Magnetic Particle Testing
E1019 Test Methods for Determination of Carbon, Sulfur, Nitrogen, and Oxygen in Steel, Iron, Nickel, and Cobalt Alloys by Various Combustion and Fusion Techniques
E1447 Test Method for Determination of Hydrogen in Titanium and Titanium Alloys by Inert Gas Fusion Thermal Conductivity/Infrared Detection Method
E1806 Practice for Sampling Steel and Iron for Determination of Chemical Composition

2.2 Manufacturers Standardization of the Value and Fittings Industry Standards:

MSS SP-55 Quality Standard for Steel Castings – Visual Method³

3. General Conditions for Delivery

3.1 Materials furnished to this Specification shall conform to the applicable requirements of Specification **A703/A703M**, including the supplementary requirements that are indicated on the purchase order.

3.2 Terminology and test methods shall be in accordance with Test Methods and Definitions **A370**.

3.3 In the case of conflict between requirements of this specification and referenced specifications, the former shall prevail.

4. Ordering Information

4.1 It shall be the responsibility of the purchaser to specify all requirements that are necessary for material ordered under this specification. Such requirements to be considered include, but are not limited to, the following:

4.1.1 A description of the casting by pattern number or a fully dimensional and toleranced drawing,

4.1.2 ASTM designation and year of issue,

4.1.3 Section range and class of steel (see **Table 1**),

³ Available from Manufacturers Standardization Society of the Valve and Fittings Industry (MSS), 127 Park St., NE, Vienna, VA 22180-4602.