



Standard Specification for Steel Castings, Ferritic and Martensitic, for Pressure- Containing Parts, Suitable for Low-Temperature Service¹

This standard is issued under the fixed designation A 352/A 352M; 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 steel castings for valves, flanges, fittings, and other pressure-containing parts intended primarily for low-temperature service.

1.2 Several grades of ferritic steels and one grade of martensitic steel are covered. Selection of analysis will depend on design and service conditions (Note). The temperature shown is the lowest temperature at which the material ordinarily is required to meet the impact requirements of this specification (see Supplementary Requirement S22, Impact Test Temperatures). Users should note that hardenability of some of the grades mentioned may restrict the maximum size at which the required mechanical properties are obtainable (see Appendix X1).

Grade	Usual Minimum Testing Temperatures, °F [°C]
LCA	-25 [-32]
LCB	-50 [-46]
LCC	-50 [-46]
LC1	-75 [-59]
LC2	-100 [-73]
LC2-1	-100 [-73]
LC3	-150 [-101]
LC4	-175 [-115]
LC9	-320 [-196]
CA6NM	-100 [-73]

NOTE 1—This specification covers the low-temperature requirements particularly pertinent for ferritic and martensitic steels. Certain of the grades of austenitic steel castings furnished in accordance with Specification A 351/A 351M have been found suitable for low-temperature service down to -300°F [-184°C] and others down to -425°F [-254°C]. These grades may be used when impact tested in accordance with Specification A 352/A 352M with energy levels and temperatures of test mutually agreed upon between the purchaser and the manufacturer. As a guide to the selection of energy levels and testing temperatures, Appendix X1 should be consulted.

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 ASME Boiler and Pressure Vessel Code applications, see related Specification SA-352, in Section II of that Code.

1.3 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. Inch-pound units are applicable for material ordered to Specification A 352 and SI units for material ordered to Specification A 352M.

2. Referenced Documents

2.1 ASTM Standards:

A 351/A351M Specification for Castings, Austenitic, Austenitic-Ferritic (Duplex), for Pressure-Containing Parts³

A 370 Test Methods and Definitions for Mechanical Testing of Steel Products⁴

A 488/A488M Practice for Steel Castings, Welding, Qualifications of Procedures and Personnel³

A 703/A703M Specification for Steel Castings, General Requirements, for Pressure-Containing Parts³

E 165 Test Method for Liquid Penetrant Examination⁵

E 709 Guide for Magnetic Particle Examination⁵

2.2 Manufacturers' Standardization Society of the Valve and Fittings Industry Standard:

SP-55 Quality Standard for Steel Castings for Valves, Flanges, and Fittings and Other Piping Components (Visual Method)⁶

3. General Conditions for Delivery

3.1 Material furnished to this specification shall conform to the requirements of Specification A 703/A 703M including any supplementary requirements that are indicated in the purchase order. Failure to comply with the general requirements of Specification A 703/A 703M constitutes nonconformance with this specification. In case of conflict between the requirements

³ Annual Book of ASTM Standards, Vol 01.02.

⁴ Annual Book of ASTM Standards, Vol 01.03.

⁵ Annual Book of ASTM Standards, Vol 03.03.

⁶ Available from Manufacturers' Standardization Society of the Valve and Fittings Industry, 127 Park St., North East Vienna, VA 22180.

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