



Standard Specification for Steel Castings, Iron-Chromium and Iron-Chromium-Nickel, Heat Resistant, for General Application¹

This standard is issued under the fixed designation A 297/A 297M; 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 iron-chromium and iron-chromium-nickel alloy castings for heat-resistant service. The grades covered by this specification are general purpose alloys and no attempt has been made to include heat-resisting alloys used for special production application.

NOTE 1—For heat-resisting alloys used for special product application, reference should be made to Specification A 351/A 351M, A 217/A 217M, and A 447/A 447M.

1.2 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 ASTM Standards:

A 217/A217M Specification for Steel Castings, Martensitic Stainless and Alloy, for Pressure-Containing Parts, Suitable for High-Temperature Service²

A 351/A351M Specification for Castings, Austenitic, Austenitic-Ferritic (Duplex), for Pressure-Containing Parts²

A 370 Test Methods and Definitions for Mechanical Testing of Steel Products³

A 447/A447M Specification for Steel Castings, Chromium-Nickel-Iron Alloy (25-12 Class), for High-Temperature Service²

A 781/A781M Specification for Castings, Steel and Alloy, Common Requirements, for General Industrial Use²

¹ This specification is under the jurisdiction of ASTM Committee A-1 on Steel, Stainless Steel, and Related Alloys and is the direct responsibility of Subcommittee A01.18 on Castings.

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² Annual Book of ASTM Standards, Vol 01.02.

³ Annual Book of ASTM Standards, Vol 01.03.

3. General Conditions for Delivery

3.1 Material furnished to this specification shall conform to the requirements of Specification A 781/A 781M, including any supplementary requirements that are indicated in the purchase order. Failure to comply with the general requirements of Specification A 781/A 781M constitutes nonconformance with this specification. In case of conflict between the requirements of this specification and Specification A 781/A 781M, this specification shall prevail.

4. Ordering Information

4.1 The inquiry and order should include or indicate the following:

4.1.1 A description of the casting by pattern number or drawing (dimensional tolerances shall be included on the casting drawing),

4.1.2 Grade of steel,

4.1.3 Options in the specification, and

4.1.4 The supplementary requirements desired including the standards of acceptance.

5. Process

5.1 Alloys shall be made by the following processes: electric-arc, electric-induction, or other approved processes.

6. Heat Treatment

6.1 Castings for heat-resistant service may be shipped in the as-cast condition without heat treatment. If heat treatment is required, the treatment shall be established by mutual agreement between the manufacturer and the purchaser and shall be so specified in the inquiry, contract, or order.

7. Chemical Composition

7.1 Alloys shall conform to the requirements as to chemical composition prescribed in Table 1.

8. Repair by Welding

8.1 The composition of the deposited weld metal shall be similar to the composition of the casting. All weld repairs shall be subjected to the same inspection standards as the casting.