Designation: A 565/A 565M – 05

Standard Specification for Martensitic Stainless Steel Bars for High-Temperature Service[1]

This standard is issued under the fixed designation A 565/A 565M; 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 specification covers hot-finished and cold-finished martensitic chromium steel bars for high-temperature service. The mechanical properties are developed by suitable heat treatment, as indicated for each alloy.

1.2 Where strength at temperature is a factor, these steels are generally limited to a maximum service temperature of 1200°F [650°C]. For oxidation (scaling) resistance and at low stresses, these steels are useful to 1450°F [790°C].

1.3 This specification is expressed in both inch-pound units and SI units; however, unless the purchase order or contract specifies the applicable *M* specification designation (SI units), the inch-pound units shall apply. 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 may not be exact equivalents; therefore, each system shall 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:*[2]

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

A 484/A 484M Specification for General Requirements for Stainless Steel Bars, Billets, and Forgings

A 751 Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products

A 994 Guide for Editorial Procedures and Form of Product Specifications for Steel, Stainless Steel, and Related Alloys

E 527 Practice for Numbering Metals and Alloys (UNS)

2.2 *Other Documents:*

SAE J1086 Recommended Practice for Numbering Metals and Alloys (UNS)[3]

3. Ordering Information

3.1 It is the responsibility of the purchaser to specify all requirements that are necessary for material ordered under this specification. Such requirements may include, but are not limited to, the following:

3.1.1 Quantity (weight or number of pieces);

3.1.2 Name of material (martensitic stainless steel);

3.1.3 Form (bar, etc.);

3.1.4 Condition;

3.1.5 Finish;

3.1.6 Size, or applicable dimension including diameter, thickness, width, length, etc.;

3.1.7 Grade designation (Table 1); and

3.1.8 ASTM designation number and date of issue.

4. General Requirements

4.1 Product furnished to this specification shall conform to the requirements of Specification A 484A 484/A 484M/A 484M, including any supplementary requirements indicated in the purchase order. Failure to comply with the general requirements of Specification A 484A 484/A 484M/A 484M constitutes nonconformance with this specification. In case of conflict between the requirements of this specification and Specification A 484A 484/A 484M/A 484M, this specification shall prevail.

5. Manufacture

5.1 *Heat Treatment*:

5.1.1 The product forms covered in this specification may be furnished in one of the following conditions:

5.1.1.1 *Condition A*—Annealed,

5.1.1.2 *Condition T*—Heat treated (for machining),

5.1.1.3 *Condition HT*—Heat treated (for high-temperature service), or

5.1.1.4 *Condition H*—Heat treated.

[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 A01.17 on Flat-Rolled and Wrought Stainless Steel.

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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.

[3] Available from Society of Automotive Engineers (SAE), 400 Commonwealth Dr., Warrendale, PA 15096-0001.

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