



Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar¹

This standard is issued under the fixed designation A 666; 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 austenitic stainless steels in the annealed and normally required cold-worked conditions for various structural, architectural, pressure vessel, magnetic, cryogenic, and heat-resisting applications. (This revision of Specification A 666 replaces prior Specifications A 412 and A 177.)

1.2 The application of this specification, or the use of material covered by this specification does not automatically allow usage in pressure vessel applications. Only annealed conditions of grades specifically approved by the ASME code are permitted for pressure vessel use.

1.3 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

2. Referenced Documents

2.1 ASTM Standards:²

- A 240/A 240M Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
- A 370 Test Methods and Definitions for Mechanical Testing of Steel Products
- A 480/A 480M Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip
- A 484/A 484M Specification for General Requirements for Stainless Steel Bars, Billets, and Forgings

3. Material Test Report and Certification

3.1 In addition to the requirements of Specification A 480/A 480M, the cold-worked condition (annealed, ¼ H, ½ H, and so forth) shall be noted.

4. Chemical Composition

4.1 The steel shall conform to the requirements as to chemical composition specified in Table 1, and shall conform to applicable requirements specified in the current edition of Specification A 480/A 480M.

5. Mechanical Properties

5.1 The material shall conform to the mechanical properties specified in Table 2 and Table 3, or Table 2 and Table 4.

6. General Requirements

6.1 The following requirements for orders for material furnished under this specification shall conform to the applicable requirements of the current edition of Specification A 480/A 480M or A 484/A 484M:

- 6.1.1 Definitions,
- 6.1.2 General requirements for delivery,
- 6.1.3 Ordering information,
- 6.1.4 Process,
- 6.1.5 Special tests,
- 6.1.6 Heat treatment,
- 6.1.7 Dimensions and permissible variations,
- 6.1.8 Workmanship, finish and appearance,
- 6.1.9 Number of tests/test methods,
- 6.1.10 Specimen preparation,
- 6.1.11 Retreatment,
- 6.1.12 Inspection,
- 6.1.13 Rejection and reheating,
- 6.1.14 Material test report,
- 6.1.15 Certification, and
- 6.1.16 Packaging, marking, and loading.

7. Sampling

7.1 Tension and bend-test specimens of sheet, strip, and plate products shall be selected from finished material and shall be selected in the transverse direction, except in the case of strip under 9 in. (229 mm) in width, in which case tension test specimens shall be selected in the longitudinal direction.

7.2 Flat bar tension and bend-test specimens shall be selected from the finished material and shall be in the longitudinal direction.

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.