



Designation: A1010/A1010M – 13 (Reapproved 2018)

Standard Specification for Higher-Strength Martensitic Stainless Steel Plate, Sheet, and Strip¹

This standard is issued under the fixed designation A1010/A1010M; 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 martensitic stainless steels for various structural, architectural, pressure vessel, and heat-resisting applications. The mechanical properties of these steels are customarily, but not necessarily, developed by a suitable heat treatment generally referred to as tempering.

1.2 Steel products under this specification are available in two grades:

Grade	Yield Strength, min, ksi [MPa]
40 [275]	40 [275]
50 [345]	50 [345]

1.3 The maximum thickness of plates is limited only by the capacity of the composition to meet the specified mechanical property requirements; however, current practice normally limits the maximum thickness of plates furnished under this specification to 2 in. [50 mm].

1.4 The values stated in either SI units or inch-pound units are to be regarded separately as standard. 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 non-conformance with the standard.

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

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.

Current edition approved Nov. 1, 2018. Published November 2018. Originally approved in 2000. Last previous edition approved in 2013 as A1010/A1010M – 13. DOI: 10.1520/A1010_A1010M-18.

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.

A480/A480M Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip

A673/A673M Specification for Sampling Procedure for Impact Testing of Structural Steel

E527 Practice for Numbering Metals and Alloys in the Unified Numbering System (UNS)

2.2 *Other Document:*

SAE J1086 Recommended Practice for Numbering Metals and Alloys³

3. General Requirements

3.1 The following requirements for orders for material furnished under this specification shall conform to the applicable requirements of the current edition of Specification **A480/A480M**.

- 3.1.1 Terminology,
- 3.1.2 Ordering Information,
- 3.1.3 Process,
- 3.1.4 Heat Analysis,
- 3.1.5 Product Analysis,
- 3.1.6 Finish for Sheet,
- 3.1.7 Finish for Strip,
- 3.1.8 Finish for Plates,
- 3.1.9 Test Specimens,
- 3.1.10 Number of Tests,
- 3.1.11 Test Methods,
- 3.1.12 Retests and Retreatment,
- 3.1.13 Dimensions and Permissible Variations,
- 3.1.14 Workmanship,
- 3.1.15 Packaging, Marking, and Loading,
- 3.1.16 Inspection,
- 3.1.17 Rejection and Rehearing, and
- 3.1.18 Material Test Report and Certification.

4. Chemical Composition

4.1 The steel shall conform to the requirements as to chemical composition specified in **Table 1**, and shall conform

³ Available from Society of Automotive Engineers (SAE), 400 Commonwealth Dr., Warrendale, PA 15096-0001, http://www.sae.org.

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