



Designation: A283/A283M – 18

Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates¹

This standard is issued under the fixed designation A283/A283M; 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 U.S. Department of Defense.

1. Scope*

1.1 This specification² covers two grades (C and D) of carbon steel plates of structural quality for general application.

1.2 When the steel is to be welded, a welding procedure suitable for the grade of steel and intended use or service is to be utilized. See Appendix X3 of Specification **A6/A6M** for information on weldability.

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 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.

1.4 For plate produced from coil and furnished without heat treatment or with stress relieving only, the additional requirements, including additional testing requirements and the reporting of additional test results, of Specification **A6/A6M** apply.

1.5 This specification contains notes or footnotes, or both, that provide explanatory material. Such notes and footnotes, excluding those in tables and figures, do not contain any mandatory requirements.

1.6 *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:*³

A6/A6M Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling

3. General Requirements for Delivery

3.1 Plates furnished under this specification shall conform to the requirements of the current edition of Specification **A6/A6M**, for the specific date ordered, unless a conflict exists, in which case this specification shall prevail.

3.2 Coils are excluded from qualification to this specification until they are processed into finished plates. Plates produced from coil means plates that have been cut to individual lengths from a coil. The processor directly controls, or is responsible for, the operations involved in the processing of a coil into finished plates. Such operations include decoiling, leveling, cutting to length, testing, inspection, conditioning, heat treatment (if applicable), packaging, marking, loading for shipment, and certification.

NOTE 1—For plates produced from coil and furnished without heat treatment or with stress relieving only, two test results are to be reported for each qualifying coil. Additional requirements regarding plate produced from coil are described in Specification **A6/A6M**.

4. Materials and Manufacture

4.1 The steel shall be made by one or more of the following processes: basic-oxygen or electric-furnace.

4.2 The steel shall be killed.

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 **A01.02** on Structural Steel for Bridges, Buildings, Rolling Stock and Ships.

Current edition approved June 1, 2018. Published June 2018. Originally approved in 1946. Last previous edition approved in 2013 as A283/A283M – 13. DOI: 10.1520/A0283_A0283M-18.

² For ASME Boiler and Pressure Vessel Code applications, see related Specification SA-283/SA 283M in Section II of that Code.

³ 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.



TABLE 1 Chemical Requirements

Elements	Heat Analysis, %	
	Grade C	Grade D
Carbon, max	0.24	0.27
Manganese, max	0.90	0.90
Phosphorus, max	0.030	0.030
Sulfur, max	0.030	0.030
Silicon		
Plates 1½ in. [40 mm] and under, max	0.40	0.40
Plates over 1½ in. [40 mm]	0.15–0.40	0.15–0.40
Copper, min % when copper is specified	0.20	0.20

TABLE 2 Tensile Requirements^A

	Grade C	Grade D
Tensile strength, ksi [MPa]	55–75 [380–515]	60–80 [415–550]
Yield point, min, ksi [MPa]	30 [205]	33 [230]
Elongation in 8 in. [200 mm], min, % ^B	22	20
Elongation in 2 in. [50 mm], min, % ^B	25	23

^A See Specimen Orientation under the Tension Tests section of Specification A6/A6M.

^B For plates wider than 24 in. [610 mm], the elongation requirement is reduced two percentage points. See elongation requirement adjustments in the Tension Tests section of Specification A6/A6M.

5. Chemical Composition

5.1 The heat analysis shall conform to the requirements prescribed in Table 1.

5.2 The steel shall conform on product analysis to the requirements prescribed in Table 1, subject to the product analysis tolerances in Specification A6/A6M.

6. Mechanical Properties

6.1 Tensile Properties:

6.1.1 Material as represented by the test specimens shall conform to the requirements as to tensile properties prescribed in Table 2.

7. Keywords

7.1 carbon steel; plates; structural quality

SUPPLEMENTARY REQUIREMENTS

Supplementary requirements shall not apply unless specified in the order or contract. Standardized supplementary requirements for use at the option of the purchaser are listed in Specification A6/A6M. Those that are considered suitable for use with this specification are listed by title:

S2. Product Analysis.

S3. Simulated Post-Weld Heat Treatment of Mechanical Test Coupons.

S5. Charpy V-Notch Impact Test.

S6. Drop Weight Test (for Material 0.625 in. [16 mm] and over in Thickness).

S8. Ultrasonic Examination.

S15. Reduction of Area.



SUMMARY OF CHANGES

Committee A01 has identified the location of selected changes to this standard since the last issue (A283/A283M – 13) that may impact the use of this standard. (Approved June 1, 2018.)

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| (1) Revised 1.3. | (4) Revised subject heading in Section 5. |
| (2) Revised subject heading in Section 4. | (5) Revised Table 2, Table Footnote B. |
| (3) Removed open hearth from 4.1. | |

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