



Designation: A945/A945M – 16 (Reapproved 2021)

Standard Specification for High-Strength Low-Alloy Structural Steel Plate with Low Carbon and Restricted Sulfur for Improved Weldability, Formability, and Toughness¹

This standard is issued under the fixed designation A945/A945M; 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 high-strength low-alloy structural steel plate intended for use in welded construction of naval ships where a savings in weight [mass] is important. Plates that conform to this specification offer improved weldability, formability, and toughness resulting from the specified alloying elements with limitations on carbon, sulfur, and residual element contents. Grades 50 and 65 may be provided as-rolled, control-rolled, thermo-mechanical control processed (including accelerated cooling), normalized, or quenched and tempered as required to meet the specified mechanical requirements.

1.2 The maximum thickness or weight [mass] of plates shall be as follows:

Grade	Plate thickness, max, in. [mm]	Plate weight [mass], max, lb/ft ² [kg/m ²]
50	2 [50]	81.7 [393]
65	2½ [65]	102 [502]

1.3 If the steel is to be welded, it is presupposed that a welding procedure suitable for the grade of steel and intended use or service will be utilized.

1.4 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 necessarily 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 Recom-*

mendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

2. Referenced Documents

2.1 *ASTM Standards:*²

A6/A6M Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling
A370 Test Methods and Definitions for Mechanical Testing of Steel Products
A673/A673M Specification for Sampling Procedure for Impact Testing of Structural Steel
A700 Guide for Packaging, Marking, and Loading Methods for Steel Products for Shipment
E208 Test Method for Conducting Drop-Weight Test to Determine Nil-Ductility Transition Temperature of Ferritic Steels

3. General Requirements for Delivery

3.1 Plates furnished under this specification shall conform to the applicable requirements of the current edition of Specification A6/A6M.

3.2 If specified in the purchase order, plates ordered under this specification shall be prepared for shipment in accordance with the requirements of the current edition of Guide A700.

4. Materials and Manufacture

4.1 The steel shall be made to fine grain practice.

4.2 Grade 65 plates less than 1 in. [25 mm] in thickness shall be provided from continuously cast product.

4.3 Except as specified in 5.1 and 5.2, the plates after finish-rolling shall be in one of the following conditions: as-rolled, control-rolled, or thermo-mechanical control processed (including accelerated cooling).

¹ This specification is under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel and Related Alloys and is under the direct responsibility of Subcommittee A01.02 on Structural Steel for Bridges, Buildings, Rolling Stock and Ships.

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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.