



Designation: A827/A827M – 11

# Standard Specification for Plates, Carbon Steel, for Forging and Similar Applications<sup>1</sup>

This standard is issued under the fixed designation A827/A827M; 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 ( $\epsilon$ ) 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 carbon steel plates, forging quality, intended for forging, quenching-and-tempering, and similar applications in which uniformity of composition and freedom from injurious imperfections are important.

1.2 The plates are available in six grades, or chemical compositions.

1.3 When 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. See Appendix X3 of Specification A6/A6M for information on weldability.

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.

## 2. Referenced Documents

2.1 *ASTM Standards*:<sup>2</sup>

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

2.2 *ASME Code*:<sup>3</sup>

ASME Boiler and Pressure Vessel Code, Section IX

## 3. General Requirements and Ordering Information

3.1 Material furnished under this specification shall conform to the requirements of the current edition of Specification

<sup>1</sup> 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.

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<sup>2</sup> 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.

<sup>3</sup> Available from American Society of Mechanical Engineers (ASME), ASME International Headquarters, Two Park Ave., New York, NY 10016-5990, http://www.asme.org.

A6/A6M, for the ordered material, unless a conflict exists in which case this specification shall prevail.

## 4. Materials and Manufacture

4.1 The steel shall be killed.

## 5. Chemical Composition

5.1 The heat analysis shall conform to the requirements for the applicable grade listed in Table 1.

## 6. Mechanical Property Requirements

6.1 The plates shall not be subject to mechanical property testing unless otherwise specified on the order.

## 7. Quality

7.1 *General*—The plates shall be free of injurious imperfections and shall have a workmanlike finish.

7.2 *Finish*—The plates shall be furnished with a finish such as that produced by hot-rolling, except for ground areas resulting from conditioning operations, unless otherwise specified on the order.

7.3 *Surface Imperfections*:

7.3.1 All injurious surface imperfections shall be removed by the material manufacturer or processor.

7.3.1.1 Shallow imperfections shall be ground to sound metal; the ground area shall be well-faired and the thickness of the ground plate shall not be reduced below the minimum thickness permitted.

7.3.1.2 All surface imperfections, the removal of which will reduce the plate thickness below the minimum permitted, shall be cause for rejection; however, such imperfections may be repaired by welding as provided in 7.5.

7.4 *Edge Imperfections*:

7.4.1 Laminar-type discontinuities 1 in. [25 mm] and less in length, and visible to the unaided eye on the edges of plates as prepared for shipment by the manufacturer or processor, are acceptable and do not require exploration.

7.4.2 All larger discontinuities shall be explored to determine their depth and extent. Discontinuities shall be considered continuous when located in the same plane within 5 % of the plate thickness and when separated by a distance less than the length of the smaller of two adjacent discontinuities.

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