Designation: A 827/A 827M – 02

Standard Specification for Plates, Carbon Steel, for Forging and Similar Applications[1]

This standard is issued under the fixed designation A 827/A 827M; 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 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 X 3 of Specification A 6/A 6M for information on weldability.

1.4 The values stated in either inch-pound or SI units are to be regarded as standard. Within the text, the SI units are shown in brackets. The values stated in each system are not exact equivalents; therefore, each system must be used independently of the other. Combining values from the two sytems may result in nonconformance with the specification.

2. Referenced Documents

2.1 *ASTM Standards:*

A 6/A6M Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling[2]

2.2 *ASME Code:*

Boiler and Pressure Vessel Code, Section IX, Welding Qualifications[3]

3. General Requirements and Ordering Information

3.1 Material furnished under this specification shall conform to the requirements of the current edition of Specification A 6/A 6M, 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.

[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.

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[2] *Annual Book of ASTM Standards,* Vol 01.04.

[3] Available from American Society of Mechanical Engineers, 345 E. 47th St., New York, NY 10017.