



Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement¹

This standard is issued under the fixed designation A 706/A 706M; 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 *General*—This specification covers deformed and plain low-alloy steel bars in cut lengths or coils for concrete reinforcement intended for applications where restrictive mechanical properties and chemical composition are required for compatibility with controlled tensile property applications or to enhance weldability. The standard sizes and dimensions of deformed bars and their number designations are given in Table 1. The text of this specification references notes and footnotes that provide explanatory material. These notes and footnotes, excluding those in tables and figures, shall not be considered as requirements of this specification.

1.2 *Grade*—Bars are of a single minimum yield strength level: namely, 60 000 psi [420 MPa], designated as Grade 60 [420].

1.3 Plain rounds, in sizes up to and including 2 in. [50.8 mm] in diameter in coils or cut lengths, when ordered, shall be furnished under this specification. For ductility properties (elongation and bending), test provisions of the nearest smaller nominal diameter deformed bar size shall apply.

1.4 *Controlled Tensile Properties*—This specification limits mechanical properties (Table 2) to provide the desired yield/tensile properties for controlled tensile property applications.

1.5 *Welding*—This specification limits chemical composition (6.2) and carbon equivalent (6.4) to enhance the weldability of the material. When steel is to be welded, a welding procedure suitable for the chemical composition and intended use or service should be used. The use of the latest edition of ANSI/AWS D1.4 is recommended. This document describes the proper selection of the filler metals, preheat/interpass temperatures, as well as, performance and procedure qualification requirements.

1.6 This specification is applicable for orders in either inch-pound units (Specification A 706) or in SI units [Specification A 706M].

1.7 The values stated in either inch-pound units 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 systems may result in nonconformance with this specification.

2. Referenced Documents

2.1 ASTM Standards:²

A 6/A 6M Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Steel Piling

A 370 Test Methods and Definitions for Mechanical Testing of Steel Products

A 510 Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel

A 510M Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel (Metric)

A 615/A 615M Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement

A 700 Practices for Packaging, Marking, and Loading Methods for Steel Products for Domestic Shipment

A 751 Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

2.2 ANSI/AWS Standard:

AWS D1.4 Structural Welding Code—Reinforcing Steel³

2.3 Government Standards:

MIL-STD-129 Marking for Shipment and Storage⁴

MIL-STD-163 Steel Mill Products Preparation for Shipment and Storage⁴

2.4 U.S. Federal Standard:

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.

³ Available from the American Welding Society, P.O. Box 351040, 550 N.W. Le Jeune Rd., Miami, FL 33126.

⁴ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.

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 A01.05 on Steel Reinforcement.

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