



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

This standard is issued under the fixed designation A706/A706M; 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 *General*—This specification covers deformed and plain low-alloy steel bars in cut lengths and 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](#).

1.2 *Grade*—Bars are of two minimum yield strength levels: namely, 60 000 psi [420 MPa] and 80 000 psi [550 MPa], designated as Grade 60 [420] and Grade 80 [550], respectively.

1.3 Plain bars, in sizes up to and including 2½ in. [63.5 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. Requirements providing for deformations and marking shall not be applicable.

1.4 *Controlled Tensile Properties*—This specification limits tensile 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 this 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 AWS D1.4/D1.4M is recommended. The AWS D1.4/D1.4M Welding Code describes the proper selection of the filler metals, preheat/interpass temperatures, as well as, performance and procedure qualification requirements.

1.6 Requirements for alternate bar sizes are presented in [Annex A1](#). The requirements in [Annex A1](#) only apply when specified by the purchaser (see [4.2.5](#)).

1.7 The text of this specification references notes and footnotes that provide explanatory material. These notes and footnotes, excluding those in tables, shall not be considered as requirements of this specification.

1.8 This specification is applicable for orders in either inch-pound units (Specification A706) or in SI units [Specification A706M].

1.9 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 this specification.

1.10 *This specification does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this specification to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

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](#)
- [A510/A510M Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel, and Alloy Steel](#)
- [A615/A615M Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement](#)
- [A700 Guide for Packaging, Marking, and Loading Methods for Steel Products for Shipment](#)
- [A751 Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products](#)

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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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.

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