
Standard Specification for Steel Anchor Bolts

AASHTO Designation: M 314-90 (2018)

Technical Subcommittee: 4f, Metals

Release: Group 2 (June)



**American Association of State Highway and Transportation Officials
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1. SCOPE

- 1.1. This specification covers externally threaded steel anchor bolts intended for anchoring structural supports to concrete foundations. Such structural supports include building columns; column supports for highway signs, street lighting, and traffic signals; steel bearing plates; and other similar applications.
- 1.2. The anchor bolts are subject to tensile property requirements and are available in three grades (yield strength levels). Special chemical restrictions apply when weldable steel is required.
- 1.3. Zinc coating (galvanizing) requirements are included for bolts requiring corrosion protection.
- 1.4. The recommended grade and style of nuts for each grade of anchor bolt are included.
- 1.5. This specification does not cover the requirements of mechanical expansion anchors or powder activated nails or studs for concrete.
- 1.6. The values stated in SI units are to be regarded as the standard.

2. REFERENCED DOCUMENTS

- 2.1. *AASHTO Standards:*
 - M 232M/M 232, Zinc Coating (Hot-Dip) on Iron and Steel Hardware
 - T 244, Mechanical Testing of Steel Products
- 2.2. *ASTM Standards:*
 - A6/A6M, Standard Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling
 - A563, Standard Specification for Carbon and Alloy Steel Nuts
 - A751, Standard Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products
 - B695, Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel
 - F436, Standard Specification for Hardened Steel Washers Inch and Metric Dimensions
- 2.3. *ANSI Standard:*
 - ANSI B1.1, Unified Screw Threads

3. TERMINOLOGY

3.1. *Description of Terms Specific to This Standard:*

- 3.1.1. *anchor bolt*—a steel bar or rod, one end of which is intended to be cast in concrete, while the opposite end is threaded and projects from the concrete, for anchoring other material to the concrete.
- 3.1.1.1. *Discussion*—the end of the bar or rod cast in concrete may be either straight or provided with an anchor such as a hook or welded or bolted attachment to resist forces imposed on the bolt, as required.
- 3.1.2. *fabricator*—the manufacturer of the bolt.
- 3.1.3. *producer*—the manufacturer of the steel rods or bars.
- 3.1.4. *purchaser*—the purchaser of the finished anchor bolt or the purchaser’s designated agent.
- 3.1.5. *supplier*—the agent who furnishes the finished bolts and nuts to the purchaser; may be the fabricator.

4. CLASSIFICATION

4.1. *Anchor bolts covered by this specification are classified as follows:*

- 4.1.1. *Grade*—The anchor bolts shall be furnished in one of three grades (Grade 36, Grade 55, or Grade 105) corresponding to the minimum yield strength of the steel (Section 8.1).
- 4.1.2. Weldable steel shall meet the requirements of Supplementary Requirement S1, when specifically ordered.

5. ORDERING INFORMATION

5.1. *Orders for anchor bolts under this specification shall include the following information as necessary to adequately describe the desired product:*

- 5.1.1. Quantity (number of pieces);
Note 1—If the purchaser intends to perform destructive tests on fabricated bolts, the fabricator should be advised so that an adequate number are produced, especially for sizes and grades not readily available from stock.
- 5.1.2. Name of material (steel anchor bolts);
- 5.1.3. AASHTO designation including year of issue;
- 5.1.4. Grade of steel (Section 4.1.1);
- 5.1.5. Weldable steel to meet Supplementary Requirement S1, when required;
- 5.1.6. *Dimensions*—diameter (based on nominal thread diameter), bolt length, thread length, length of hook (if hook is required);
- 5.1.7. *Zinc coating or other protective coating (when required) (Section 6.4):*