



Standard Specification for Quality Assurance Requirements for Carbon and Alloy Steel Wire, Rods, and Bars for Mechanical Fasteners¹

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1. Scope*

1.1 This specification establishes quality assurance requirements for the physical, mechanical, and metallurgical requirements for carbon and alloy steel wire, rods, and bars in coils intended for the manufacture of mechanical fasteners which includes: bolts, nuts, rivets, screws, washers, and special parts manufactured cold.

NOTE 1—The Steel Industry uses the term “quality” to designate characteristics of a material which make it particularly well suited to a specific fabrication and/or application and does not imply “quality” in the usual sense.

1.2 Wire size range includes 0.062 to 1.375 in.

1.3 Rod size range usually includes $\frac{7}{32}$ in. (0.219) to $\frac{47}{64}$ in. (0.734) and generally offered in $\frac{1}{64}$ increments (0.0156).

1.4 Bar size range includes $\frac{3}{8}$ in. (0.375) to 1½ in. (1.500).

1.5 Sizes for wire, rod and bar outside the ranges of paragraphs 1.2 – 1.4 may be ordered by agreement between purchaser and supplier.

1.6 Material is furnished in many application variations. The purchaser should advise the supplier regarding the manufacturing process and finished product application as appropriate. Five application variations are:

- Cold Heading
- Recessed Head
- Socket Head
- Scrapless Nut
- Tubular Rivet

1.6.1 Wire is furnished for all five application variations.

1.6.2 Rod and bar are furnished to the single application variation; Cold Heading.

¹ This specification is under the jurisdiction of ASTM Committee F16 on Fasteners and is the direct responsibility of Subcommittee F16.93 on Quality Assurance Provisions for Fasteners.

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2. Referenced Documents

2.1 ASTM Standards:²

- A29/A29M Specification for General Requirements for Steel Bars, Carbon and Alloy, Hot-Wrought
- A370 Test Methods and Definitions for Mechanical Testing of Steel Products
- 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
- E4 Practices for Force Verification of Testing Machines
- E10 Test Method for Brinell Hardness of Metallic Materials
- E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications
- E112 Test Methods for Determining Average Grain Size
- E381 Method of Macroetch Testing Steel Bars, Billets, Blooms, and Forgings
- E407 Practice for Microetching Metals and Alloys
- E1077 Test Methods for Estimating the Depth of Decarburization of Steel Specimens
- F1470 Practice for Fastener Sampling for Specified Mechanical Properties and Performance Inspection
- F1789 Terminology for F16 Mechanical Fasteners

2.2 AIAG Standard:

- B-5 Primary Metals Tag Application Standard³

2.3 IFI Standard:

- IFI-140 Carbon and Alloy Steel Wire, Rods, and Bars for Mechanical Fasteners⁴

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 Automotive Industry Action Group (AIAG), 26200 Lahser Rd., Suite 200, Southfield, MI 48033, <http://www.aiag.org>.

⁴ Available from Industrial Fasteners Institute (IFI), 6363 Oak Tree Blvd, Independence, OH 44131, <http://www.indfast.org>.