Designation: A 563 – 07a

Standard Specification for Carbon and Alloy Steel Nuts[1]

This standard is issued under the fixed designation A 563; 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[2] covers chemical and mechanical requirements for eight grades of carbon and alloy steel nuts for general structural and mechanical uses on bolts, studs, and other externally threaded parts.

NOTE 1—See Appendix X1 for guidance on suitable application of nut grades.

1.2 The requirements for any grade of nut may, at the supplier's option, and with notice to the purchaser, be fulfilled by furnishing nuts of one of the stronger grades specified herein unless such substitution is barred in the inquiry and purchase order.

1.3 Grades C3 and DH3 nuts have atmospheric corrosion resistance and weathering characteristics comparable to that of the steels covered in Specifications A 242/A 242M, A 588/A 588M, and A 709/A 709M. The atmospheric corrosion resistance of these steels is substantially better than that of carbon steel with or without copper addition (see 5.2). When properly exposed to the atmosphere, these steels can be used bare (uncoated) for many applications.

NOTE 2—A complete metric companion to Specification A 563 has been developed—A 563M; therefore, no metric equivalents are presented in this specification.

1.4 Terms used in this specification are defined in Terminology F 1789 unless otherwise defined herein.

2. Referenced Documents

2.1 *ASTM Standards:* [3]

A 194/A 194M Specification for Carbon and Alloy Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both

A 242/A 242M Specification for High-Strength Low-Alloy Structural Steel

A 307 Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength

A 325 Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength

A 354 Specification for Quenched and Tempered Alloy Steel Bolts, Studs, and Other Externally Threaded Fasteners

A 394 Specification for Steel Transmission Tower Bolts, Zinc-Coated and Bare

A 449 Specification for Hex Cap Screws, Bolts and Studs, Steel, Heat Treated, 120/105/90 ksi Minimum Tensile Strength, General Use

A 490 Specification for Structural Bolts, Alloy Steel, Heat Treated, 150 ksi Minimum Tensile Strength

A 588/A 588M Specification for High-Strength Low-Alloy Structural Steel, up to 50 ksi [345 MPa] Minimum Yield Point, with Atmospheric Corrosion Resistance

A 687 Specification for High-Strength Nonheaded Steel Bolts and Studs[4]

A 709/A 709M Specification for Structural Steel for Bridges

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

B 695 Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel

D 3951 Practice for Commercial Packaging

F 606 Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, Direct Tension Indicators, and Rivets

F 812/F 812M Specification for Surface Discontinuities of Nuts, Inch and Metric Series

F 1789 Terminology for F16 Mechanical Fasteners

F 2329 Specification for Zinc Coating, Hot-Dip, Requirements for Application to Carbon and Alloy Steel Bolts, Screws, Washers, Nuts, and Special Threaded Fasteners

G 101 Guide for Estimating the Atmospheric Corrosion Resistance of Low-Alloy Steels

2.2 *ANSI Standards:*

[1] This specification is under the jurisdiction of ASTM Committee F16 on Fasteners and is the direct responsibility of Subcommittee F16.02 on Steel Bolts, Nuts, Rivets and Washers.

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[2] For *ASME Boiler and Pressure Vessel Code* applications see related Specification SA – 563 in Section II of that Code.

[3] 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.

[4] Withdrawn.

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

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