



**Designation: A 563M – 00
METRIC**

Standard Specification for Carbon and Alloy Steel Nuts [Metric]¹

This standard is issued under the fixed designation A 563M; 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 covers chemical and mechanical requirements for eight property classes of hex and hex-flange carbon and alloy steel nuts for general structural and mechanical uses on bolts, studs, and other externally threaded parts.

NOTE 1—Throughout this specification, the term class means property class.

NOTE 2—Requirements for the four classes 5, 9, 10, and 12 are essentially identical with requirements given for these classes in ISO 898/II, Mechanical Properties of Fasteners, Part II, Nuts With Specified Proof Loads, Requirements for Classes 8S and 10S are essentially identical with requirements to be given for these classes in an ISO standard now under development. Classes 8S3 and 10S3 are not recognized in ISO standards.

1.2 Classes 8S3 and 10S3 nuts have atmospheric corrosion resistance and weathering characteristics comparable to those of the steels covered in Specification A 588/A 588M. 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.

1.3 The nut size range for which each class is applicable is given in the table on mechanical requirements.

1.4 Appendix X1 gives guidance to assist designers and purchasers in the selection of a suitable class.

1.5 Appendix X2 gives data on the properties of slotted hex nuts and hex jam nuts.

NOTE 3—This specification is the metric companion of Specification A 563.

2. Referenced Documents

2.1 ASTM Standards:

A 153 Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware²

A 325M Specification for High-Strength Bolts for Structural Steel Joints [Metric]³

¹ This specification is under the jurisdiction of ASTM Committee F-16 on Fasteners and is the direct responsibility of Subcommittee F16.02 on Steel Bolts, Nuts, Rivets, and Washers.

Current edition approved Jan. 10, 2000. Published March 2000. Originally published as A 563M – 80. Last previous edition A 563M – 97.

² Annual Book of ASTM Standards, Vol 01.06.

³ Annual Book of ASTM Standards, Vol 01.08.

A 394 Specification for Steel Transmission Tower Bolts, Zinc-Coated and Bare³

A 490M Specification for High-Strength Steel Bolts, Classes 10.9 and 10.9.3, for Structural Steel Joints [Metric]³

A 588/A588M Specification for High-Strength Low-Alloy Structural Steel with 50 ksi (345 MPa) Minimum Yield Point to 4 in. (100 mm) Thick⁴

A 751 Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products⁵

B 695 Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel⁶

D 3951 Practice for Commercial Packaging⁷

F 606M Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets [Metric]³

F 812/F812M Specification for Surface Discontinuities of Nuts, Inch and Metric Series³

G 101 Guide for Estimating the Atmospheric Corrosion Resistance of Low-Alloy Steels⁸

2.2 ANSI Standards:⁹

B 1.13M Metric Screw Threads—M Profile

B 18.2.4.1M Metric Hex Nuts, Style 1

B 18.2.4.2M Metric Hex Nuts, Style 2

B 18.2.4.3M Metric Slotted Hex Nuts

B 18.2.4.4M Metric Hex Flange Nuts

B 18.2.4.5M Metric Hex Jam Nuts

B 18.2.4.6M Metric Heavy Hex Nuts

3. Ordering Information

3.1 Orders for nuts under this specification shall include the following:

3.1.1 Quantity (number of nuts),

3.1.2 Nominal diameter and thread pitch,

3.1.3 Dimensional style of nut (for example, hex, heavy hex, or hex flange),

⁴ Annual Book of ASTM Standards, Vol 01.04.

⁵ Annual Book of ASTM Standards, Vol 01.03.

⁶ Annual Book of ASTM Standards, Vol 02.05.

⁷ Annual Book of ASTM Standards, Vol 15.09.

⁸ Annual Book of ASTM Standards, Vol 03.02.

⁹ Available from American National Standards Institute, 11 West 42nd St., 13th Floor, New York, NY 10036.

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