



Designation: F844 – 07a (Reapproved 2013)

Standard Specification for Washers, Steel, Plain (Flat), Unhardened for General Use¹

This standard is issued under the fixed designation F844; 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 This specification covers round and miscellaneous shape steel plain (flat) washers furnished in an unhardened condition.

1.2 The washers are intended for general use bolt, nut, and stud applications to provide increased bearing surface, spacing, and to prevent galling.

1.3 Unless otherwise specified, the washers are furnished with dimensions conforming to B18.22.1, Type A, Tables 1A and Tables 1B.

1.4 Hardened washers for use with heat-treated structural bolts are covered by Specifications F436 and F436M.

1.5 The values stated in inch-pound units are to be regarded as standard. No other units of measurement are included in this standard.

2. Referenced Documents

2.1 *ASTM Standards*:²

A29/A29M Specification for General Requirements for Steel Bars, Carbon and Alloy, Hot-Wrought

A568/A568M Specification for Steel, Sheet, Carbon, Structural, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for

A751 Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products

B633 Specification for Electrodeposited Coatings of Zinc on Iron and Steel

B695 Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel

D3951 Practice for Commercial Packaging

F436 Specification for Hardened Steel Washers

F436M Specification for Hardened Steel Washers (Metric)

F606 Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners,

Washers, Direct Tension Indicators, and Rivets

F1470 Practice for Fastener Sampling for Specified Mechanical Properties and Performance Inspection

F2329 Specification for Zinc Coating, Hot-Dip, Requirements for Application to Carbon and Alloy Steel Bolts, Screws, Washers, Nuts, and Special Threaded Fasteners

2.2 *ASME Standards*:³

B18.22.1 Plain Washers

B18.24 Part Identifying Number (PIN) Code System Standard for B18 Fastener Products

2.3 *Military Specification*:

DOD-P-16232 Phosphate Coating for Ferrous Metals⁴

2.4 *Federal Specification*:

QQ-P-416 Plating, Cadmium (Electrodeposited)⁴

3. Ordering Information

3.1 Orders for washers under this specification shall include:

3.1.1 Quantity (number of pieces of same item and size).

3.1.2 Name of item (steel plain washers).

3.1.3 Size (Nominal inside diameter and thickness. Include outside diameter, when required).

3.2 The following requirements are optional and may be specified when required:

3.2.1 Dimensions if other than B18.22.1, Type A.

3.2.2 Finish if other than oiled (see 4.3 through 4.3.6).

3.2.3 Chemical composition, if required (see 5.1.2).

3.2.4 Hardness, if required (see 6.2).

3.2.5 Shipment lot Testing, if required (see 9.2).

3.2.6 Test Reports, if required (see Section 12).

3.2.7 Marking, if required (see 14.1).

3.2.8 For establishment of a part identifying system, see ASME B18.24.

4. Materials and Manufacture

4.1 *Material*—The washers shall be punched from hot-rolled, hot-rolled and pickled, or cold-rolled steel; or shall be

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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.

³ Available from American Society of Mechanical Engineers (ASME), ASME International Headquarters, Two Park Ave., New York, NY 10016-5990, <http://www.asme.org>.

⁴ Available from DLA Document Services, Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, <http://quicksearch.dla.mil/>