



Standard Specification for Hardened Steel Washers¹

This standard is issued under the fixed designation F436; 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.

1. Scope*

1.1 This specification covers the chemical, mechanical, and dimensional requirements for hardened steel washers for use with fasteners having nominal thread diameters of $\frac{1}{4}$ through 4 in. These washers are intended for general-purpose mechanical and structural use with bolts, nuts, studs, and other internally and externally threaded fasteners. These washers are suitable for use with fasteners covered in Specifications [A325](#), [A354](#), [A449](#), and [A490](#).

1.2 The washers are designated by *type* denoting the material and by *style* denoting the shape.

1.2.1 The types of washers covered are:

1.2.1.1 *Type 1*—Carbon steel.

1.2.1.2 *Type 3*—Weathering steel. Atmospheric corrosion resistance and weathering characteristics are comparable to that of steels covered in Specifications [A588/A588M](#) and [A709/A709M](#). The atmospheric corrosion resistance of these steels is substantially better than that of carbon steel with or without copper addition. See [5.1](#). When properly exposed to the atmosphere, these steels can be used bare (uncoated) for many applications.

1.2.1.3 This specification provides for furnishing Type 3 to chemical composition or a Corrosion Index (CRI) of 6 or higher at the suppliers option.

1.2.2 The styles of washers covered are:

1.2.2.1 *Circular*—Circular washers in nominal bolt sizes $\frac{1}{4}$ through 4 in. suitable for applications where sufficient space exists and angularity permits.

1.2.2.2 *Beveled*—Beveled washers are square or rectangular, in nominal sizes $\frac{1}{2}$ through $1\frac{1}{2}$ in., with a beveled 1 to 6 ratio surface for use with American standard beams and channels.

1.2.2.3 *Clipped*—Clipped washers are circular or beveled for use where space limitations necessitate that one side be clipped.

1.2.2.4 *Extra Thick*—Extra thick washers are circular washers in nominal sizes $\frac{1}{2}$ through $1\frac{1}{2}$ in., with a nominal thickness of $\frac{5}{16}$ in. suitable for structural applications with oversized holes.

1.3 Terms used in this specification are defined in Terminology [F1789](#) unless otherwise defined herein.

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

NOTE 1—A complete metric companion to Specification [F436M](#) has been developed—Specification [F436M](#); therefore no metric equivalents are presented in this specification.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards*:²

[A325](#) Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength

[A354](#) Specification for Quenched and Tempered Alloy Steel Bolts, Studs, and Other Externally Threaded Fasteners

[A449](#) Specification for Hex Cap Screws, Bolts and Studs, Steel, Heat Treated, 120/105/90 ksi Minimum Tensile Strength, General Use

[A490](#) Specification for Structural Bolts, Alloy Steel, Heat Treated, 150 ksi Minimum Tensile Strength

[A588/A588M](#) Specification for High-Strength Low-Alloy Structural Steel, up to 50 ksi [345 MPa] Minimum Yield Point, with Atmospheric Corrosion Resistance

[A709/A709M](#) Specification for Structural Steel for Bridges

[A751](#) Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products

[B695](#) Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel

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 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.

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