



Standard Specification for Steel Stud Assemblies for Shear Reinforcement of Concrete¹

This standard is issued under the fixed designation A1044/A1044M; 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 steel stud assemblies for shear reinforcement of concrete. Stud assemblies consist of either single-headed studs (Type 1) attached to a structural steel base rail by structural welding or stud welding, or double-headed studs (Type 2) mechanically crimped into a non-structural steel shape or attached to a steel plate by spot welding or tack welding. These stud assemblies are not intended for use as shear connectors in steel-concrete composite construction.

NOTE 1—The configuration of the studs for stud assemblies is much different than the configuration of the headed-type studs prescribed in Section 7, Figure 7.1 of AWS D1.1/D1.1M. Ratios of the cross-sectional areas of the head-to-shank of the AWS D1.1/D1.1M studs range from about 2.5 to 4. In contrast, this specification requires the area of the head of the studs for stud assemblies to be at least 10 times the area of the shank. Thus, the standard headed-type studs in Section 7, Figure 7.1 of AWS D1.1/D1.1M do not conform to the requirements of this specification for use as stud assemblies for shear reinforcement.

1.2 This specification is applicable for orders in either inch-pound units or in SI units.

1.3 The values stated either in inch-pound or SI units are to be regarded as standard. Within the text, the SI units are shown in brackets. The values stated in each system are not exact equivalents; therefore, each system must be used independently of the other. Combining values from the two systems may result in nonconformance with this specification.

2. Referenced Documents

2.1 ASTM Standards:²

A29/A29M Specification for General Requirements for Steel Bars, Carbon and Alloy, Hot-Wrought
A36/A36M Specification for Carbon Structural Steel
A370 Test Methods and Definitions for Mechanical Testing of Steel Products

¹ This specification is under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel and Related Alloys and is the direct responsibility of Subcommittee A01.05 on Steel Reinforcement.

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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.

A615/A615M Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement

A706/A706M Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement

2.2 AWS Standard:³

AWS D1.1/D1.1M-2004 Structural Welding Code—Steel

2.3 U.S. Military Standards:⁴

MIL-STD-129 Marking for Shipment and Storage

MIL-STD-163 Steel Mill Products Preparation for Shipment and Storage

2.4 U.S. Federal Standard:⁴

Fed. Std. No. 123 Marking for Shipment (Civil Agencies)

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *base rail, n*—the steel shape or plate that a group of headed studs is attached to by welding or other means.

3.1.1.1 *Discussion*—Stud assemblies comprised of single-headed studs (Type 1) require a base rail; the base rail acts as a structural element to provide anchorage to the concrete. For stud assemblies in which double-headed studs (Type 2) are mechanically crimped into a steel shape, for example, into a steel channel, the base rail is not required to provide anchorage to the concrete; the purpose of the base rail is to hold the studs in the appropriate location, direction, and spacing until the concrete is cast. For stud assemblies in which double-headed studs (Type 2) are attached to a steel plate by spot welding or tack welding, the steel plate is not required to provide anchorage to the concrete; the purpose of the steel plate is to hold the studs in the appropriate location, direction, and spacing until the concrete is cast.

3.1.2 *headed stud, n*—a steel bar used in the reinforcement of concrete that has a head formed at one or both ends.

4. Ordering Information

4.1 It shall be the responsibility of the purchaser to specify all requirements that are necessary for material ordered to this

³ Available from American Welding Society (AWS), 8669 NW 36 Street, #130, Miami, FL 33166-6672, <http://www.aws.org>.

⁴ Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098, <http://dodssp.daps.dla.mil>.

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