

FED. SUPPLY CLASS

5307

1. SCOPE

- 1.1 Scope. This specification covers the requirements for self-clinching studs, which are permanently attached to a structure by embedding them into the structure. Push-out, pull-out resistance results from cold flow of the structural material into recesses or grooves provided beneath the head of the stud.

2. APPLICABLE DOCUMENTS

2.1 Government Documents.

- 2.1.1 Specifications and standards. The following specifications and standards form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplements thereto, cited in the solicitation (see 6.2).

STANDARDS

FEDERAL

FED-STD-H28/2 Screw Thread Standards for Federal Services, Section 2, Unified Thread Form and Thread Series for Bolts, Screws, Nuts, Tapped Holes and General Applications

FED-STD-H28/20 Screw Thread Standards for Federal Services, Section 20, Inspection Methods for Acceptability of UN, UNR, UNJ, M, and MJ Screw Threads

HANDBOOKS

MILITARY

MIL-HDBK-57 Listing of Fastener Manufacturer's Identification Symbols

Copies can be obtained from the Department of Defense Single Stock Point (DODSSP). <http://dodssp.daps.dla.mil>

- 2.2 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.2).

ASME

ASME B46.1 Surface Texture (Surface Roughness, Waviness and Lay)

ASME B1.1 Unified Inch Screw Thread (UN and UNR Thread Form)

Copies can be obtained from ASME, Three Park Ave., New York, NY 10016-5990. www.asme.org

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THIRD ANGLE PROJECTION	CUSTODIAN NATIONAL AEROSPACE STANDARDS COMMITTEE	REVISION 1
PROCUREMENT SPECIFICATION NONE	TITLE STUD, SELF-CLINCHING GENERAL SPECIFICATION FOR	CLASSIFICATION SPECIFICATION NASM63540 SHEET 1 OF 8

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FORM 09-01

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ISSUE DATE: MARCH 2000

ASTM International

ASTM A 29/A 29M	Steel Bars, Carbon and Alloy, Hot-Wrought and Cold-Finished, General Requirements for
ASTM B 633	Electrodeposited Coatings of Zinc on Iron and Steel
ASTM B 545	Standard Specification for Electrodeposited Coatings of Tin
ASTM B 339	Standard Specification for Pig Tin
ASTM A 493	Stainless and Heat-Resisting Steel for Cold Heading and Cold Forging-Bar and Wire
ASTM A 510	General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel
ASTM A 582/A 582M	Standard Specification for Free-Machining Stainless Steel Bars
ASTM B 159/B 159M	Phosphor Bronze Wire
ASTM E 10	Brinell Hardness of Metallic Materials, Standard Test Method for
ASTM D 3951	Standard Practice for Commercial Packaging

Copies can be obtained from ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959. www.astm.org

SAE International

AMS2700	Passivation of Corrosion Resistant Steels
AMS-P-81728	Plating, Tin-Lead (Electrodeposited)
SAE J429	Mechanical and Material Requirements for Externally Threaded Fasteners, Standard

Copies can be obtained from SAE International, 400 Commonwealth Dr., Warrendale, PA 15096-0001. www.sae.org

AEROSPACE INDUSTRIES ASSOCIATION

NASM1312-6	Fastener Test Methods Method 6 Hardness
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Copies can be obtained from the Aerospace Industries Association, 1000 Wilson Blvd., Suite 1700, Arlington, VA 22209. www.aia-aerospace.org

AMERICAN SOCIETY FOR QUALITY

ASQ Z1.4	Sampling Procedures and Tables for Inspection by Attributes
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Copies can be obtained from the American Society for Quality, 600 North Plankinton Ave., Milwaukee, WI 53203. www.asq.org

- 2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein (except for related associated detail specifications, specifications sheets or NASM standards), the text of this document takes precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless specific exemption has been obtained.

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3. REQUIREMENTS

- 3.1 Specification sheets. The individual item requirements shall be as specified herein and in accordance with the applicable specification sheet. In the event of any conflict between the requirements of this specification and the specification sheet, the latter shall govern (see 6.2).
- 3.2 Material. Recycled and reclaimed materials shall be used to the maximum extent practicable. Self-clinching studs shall be fabricated of the following materials, as specified. (See 3.1).
- 3.2.1 Carbon steel. Carbon steel shall be Grade 1005 (UNS G10050) thru Grade 1018 (UNS G10180) in accordance with ASTM A 29/A 29M or ASTM A 510, or 10B16 and 10B21 in accordance with SAE J429 Grade 8.2.
- 3.2.2 Alloy steel. Alloy steel shall be Grade 4130 (UNS G41300) thru Grade 4140 (UNS 641400) in accordance with ASTM A 29/A 29M.
- 3.2.3 CRES. CRES shall be Type 18-9-LW (UNS S30430) (formerly identified as XM-7) and 302 (UNS S30200) in accordance with the chemical compositions specified in ASTM A 493 or Types 303 (UNS 30300) and 303SE (UNS 30323) in accordance with ASTM A 582/A 582M.
- 3.2.4 Phosphor bronze. Phosphor bronze shall be copper alloy (UNS C51000) in accordance with ASTM B 159/B 159M, temper H01.
- 3.3 Hardness. When tested in accordance with 4.3.5, self-clinching studs shall have one of the following hardness, as specified (see 3.1).
- 3.3.1 Carbon steel studs. Carbon steel studs, after carburizing and tempering or carbonitriding, shall have a hardness of 75-87 HR15N. The minimum effective depth of case shall be .010 inch. When carbon steel studs are thru hardened, they shall be 31-35 HRC.
- 3.3.2 Alloy steel studs. Alloy steel studs shall have a hardness of 26-32 HRC.
- 3.3.3 CRES studs. CRES studs shall have a hardness of 171 BHN minimum.
- 3.3.4 Phosphor bronze studs. Phosphor bronze studs shall have a hardness of 121 BHN minimum (68 HRB minimum).
- 3.4 Protective finish or surface treatment. The protective finish or surface treatment shall be one of the following, as specified (see 3. 1).
- 3.4.1 Carbon and alloy steel studs. Carbon and alloy steel studs shall be plated with electrodeposited zinc in accordance with ASTM B 633, SC 1, Type II, Yellow.
- 3.4.2 Phosphor bronze studs. Phosphor bronze studs shall be plated with electrodeposited tin in accordance with ASTM B 545 or with electrodeposited tin-lead in accordance with AMS-P-81728, as specified (see 3.1).
- 3.4.3 CRES studs. CRES studs shall be passivated in accordance with AMS2700, Method 1, Class 4.
- 3.5 Design.
- 3.5.1 Dimensions. Dimensions and tolerances shall conform to the dimensional requirements of the applicable specification sheet and shall apply after protective finish.
- 3.5.2 Threads. Threads shall be in accordance with the applicable specification sheet and shall be unified form in accordance with FED-STD-H28/2 and ASME B1.1, 2A.
- 3.5.3 Self-clinching device. The appearance and profile of the self-clinching device may vary but shall meet the dimensional requirements as specified on the applicable specification sheet.

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