

FED. SUPPLY CLASS

5315

1. SCOPE

1.1 Scope. This specifications cover solid, cylindrical, steel, headless straight pins, which are commonly referred to as dowel or machine pins.

1.2 Classification. The headless straight pins shall be of the following classes as specified.

Class 1 - .0002 inch oversize

Class 2 - .001 inch over size

Class 3 - .0002 inch under size

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. Unless otherwise specified, the following specifications, standards, and handbooks of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation form a part of this specification to the extent specified herein.

SPECIFICATIONS

Military

MIL-DTL-13924 Coating, Oxide, Black, for Ferrous Metals

MIL-DTL-16232 Phosphate Coating, Heavy, Manganese or Zinc Base (For Ferrous Metals)

STANDARDS

Military

MIL-STD-2073/1 Standard Practice for Military Packaging

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

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. The issues of the documents which are indicated as DoD adopted shall be the issue listed in the current DoDISS and the supplement thereto, if applicable.

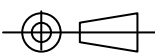
ASME

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

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

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THE INITIAL RELEASE OF THIS DOCUMENT SUPERSEDES MIL-P-21143, REVISION B, AMENDMENT 2.

THIRD ANGLE PROJECTION 	CUSTODIAN NATIONAL AEROSPACE STANDARDS COMMITTEE	REVISION 1
PROCUREMENT SPECIFICATION NONE	TITLE PIN, STRAIGHT, HEADLESS (DOWEL), GENERAL SPECIFICATION FOR	CLASSIFICATION SPECIFICATION NASM21143 SHEET 1 OF 7

Aerospace Industries Association

NASM21143/1	Pin, Straight, Headless, (Dowel) (.0002 Over Size), Cres 303
NASM21143/2	Pin, Straight, Headless, (Dowel) (.0002 Under Size), Cres 303
NASM1312	Fasteners, Test Methods
NASM16555	Pin, Straight, Headless (Dowel) (.0002 Over Size)
NASM16556	Pin, Straight, Headless (Dowel) (.001 Over Size)

Copies can be obtained from the Aerospace Industries Association, 1000 Wilson Blvd., Suite 1700, Arlington, VA 22209. www.aia-aerospace.org

SAE International

AMS-QQ-P-416	Plating, Cadmium (Electrodeposited)
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Copies can be obtained from SAE International, 400 Commonwealth Dr., Warrendale, PA 15096-0001. www.sae.org

American Society for Quality

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

ASTM International

ASTM A29/A29M	Steel Bars, Carbon and Alloy, Hot-Wrought and Cold-Finished, General Requirements for
ASTM E92	Standard Test Method for Vickers Hardness of Metallic Materials.
ASTM A380	Cleaning and Descaling Stainless Steel Parts, Equipment, and Systems, Standard Recommended Practice for
ASTM E384	Standard Test Method for Microhardness of Materials.
ASTM A493	Stainless and Heat Resisting Steel for Cold Heading and Cold Forging - Bar and Wire
ASTM A582/A582M	Free-Machining Stainless and Heat - Resisting Steel Bars, Hot-Rolled or Cold Finished
ASTM E18	Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials, Standard Test Methods for
ASTM D3951	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

- 2.3 Order of precedence. In the event of a conflict between the text of this specification and the references, other than specification sheet, cited herein, the text of this specification shall take precedence.

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.

- 3.2 Material. Recycled and reclaimed materials (see 3.1) shall be used to the maximum extent practicable.

- 3.2.1 Carbon and alloy steel. Carbon and alloy steel pins shall be made of any carbon or alloy steel grade in accordance with ASTM A29/A29M, except that the maximum sulfur and phosphorus of the chemical composition shall not exceed .05 and .04 percent respectively.

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- 3.2.2 Corrosion resistant steel (austenitic). Austenitic corrosion resistant steel shall conform to Type 303 (UNS S30300) as specified in ASTM A582/A582M.
- 3.2.3 Corrosion resistant steel (martensitic). Martensitic corrosion resistant steel shall conform to steel Types 416 (UNS S41600) or 410 (UNS S41000) as specified in ASTM A582/A582M and ASTM A493 respectively.
- 3.3 Dimensions. Dimensions and tolerances for all pins shall conform to the dimensional requirements of the applicable specification sheet or military standard. The dimensions of phosphate coated pins shall apply prior to phosphate coating. Cadmium plated pins shall be within the dimensional limits after plating (see 4.3.1).
- 3.4 Performance characteristics. Pins shall meet the following performance requirements when subjected to the applicable test as specified (see 4.3).
- 3.5 Double shear force. Pins shall be capable of withstanding the minimum double shear force as specified in Table I when tested in accordance with 4.3.2.

TABLE I – DOUBLE SHEAR FORCE

PIN DIA (INCHES)	DOUBLE SHEAR FORCE (LBF) MIN		
	CARBON OR ALLOY STEEL	CRES 410 & 416	CRES 303
1/16 (.0625)	790	610	220
5/64 (.0781)	850	700	350
3/32 (.0938)	1,400	1,000	500
1/8 (.1250)	2,600	1,800	900
5/32 (.1562)	4,100	2,800	1,400
3/16 (.1875)	5,900	4,000	2,000
1/4 (.2500)	10,000	7,200	3,550
5/16 (.3125)	16,000	11,000	5,500
3/8 (.3750)	23,000	16,000	8,000
7/16 (.4375)	32,000	22,000	11,000
1/2 (.5000)	42,000	29,000	14,000
5/8 (.6250)	65,000	45,000	22,000
3/4 (.7500)	94,000	65,000	32,000
7/8 (.8750)	120,000	88,000	43,000
1 (1.0000)	160,000	110,000	56,000

- 3.6 Protective finish and surface treatment. The protective finish and surface treatment of the pins when specified in the applicable specification sheet or military standard shall be as follows (see 4.3.3).
- 3.6.1 Carbon or alloy steel pins. When phosphate coating or cadmium plating is specified for carbon or alloy steel pins (see 3.1), they shall conform to 3.6.1.1 or 3.6.1.2 as applicable. When uncoated pins are specified in the contract or order, black-oxide coated pins as specified in MIL-DTL-13924, Class 1 may be furnished at the option of the contractor.
- 3.6.1.1 Phosphate coating. Carbon or alloy steel pins shall be phosphate coated in accordance with MIL-DTL-16232, Type Z, Class 2.
- 3.6.1.2 Cadmium plate. Carbon or alloy steel pins shall be cadmium plated in accordance with AMS-QQ-P-416, Type II, Class 2.
- 3.6.1.3 Cleaning, descaling and passivation. Corrosion resistant steel pins shall be cleaned, descaled and passivated in accordance with ASTM A380.
- 3.7 Hardness.

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