

FED. SUPPLY CLASS

5306

1. SCOPE

- 1.1 Scope. This specification covers external wrenching, tensile and shear bolts. The bolts shall be used in applications where temperatures are not greater than 450 °F.

2. APPLICABLE DOCUMENTS

2.1 Government documents

- 2.1.1 Specifications and standards. Unless otherwise specified, the following specifications and standards 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

Federal

PPP-B-566	Boxes, Folding, Paperboard
PPP-B-585	Boxes, Wood, Wirebound
PPP-B-601	~~Boxes, Wood, Cleated Plywood~~
PPP-B-621	~~Boxes, Wood, Nailed, and Lock-Corner~~
PPP-B-636	~~Box, Fiberboard~~
PPP-B-665	Boxes, Paperboard, Metal Stayed (Including Stay Material)
PPP-B-676	Boxes, Set-Up, Paperboard

Military

MIL-STD-2073-1	Preservation Methods Of
MIL-PRF-121	Barrier Material, Greaseproofed, Waterproofed, Flexible
~~MIL-T-5544~~	~~Thread Compound Antiseize, Graphite-Petrolatum~~
MIL-L-10547	Liners, Case, and Sheet, Overwrap, Waterproof, Flexible

STANDARD

Military

MIL-STD-129	Marking for Shipment and Storage
MIL-STD-1186	Cushioning, Anchoring, Bracing, Blocking, and Waterproofing with Appropriate Test Methods

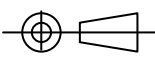
Copies can be obtained from DLA Document Services, Bldg 4/D, 700 Robbins Ave, Philadelphia, PA 19111.

<http://quicksearch.dla.mil/>

- 2.2 Other Publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

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THE INITIAL RELEASE OF THIS DOCUMENT SUPERSEDES MIL-B-8907, REVISION A, AMENDMENT 1.

THIRD ANGLE PROJECTION		CUSTODIAN NATIONAL AEROSPACE STANDARDS COMMITTEE	REVISION 1
PROCUREMENT SPECIFICATION	 NONE	TITLE BOLT, ALLOY STEEL, SHEAR AND TENSILE (156 KSI MIN Fsu AND 260 KSI MIN Ftu), 450 °F, EXTERNAL WRENCHING, FLANGED HEAD	CLASSIFICATION SPECIFICATION NASM8907 SHEET 1 OF 15

American Society for Quality

ANSI/ASQ Z1.4

Sampling Procedures and Table for by Attributes

Copies can be obtained from the American Society for Quality, 600 North Plankinton Ave., Milwaukee, WI 53203.
www.asq.org

Aerospace Industries Association

NASM1312

Fastener, Test Methods

NAS1348

Fasteners, Recommended Tensile Stress Areas for External Threaded Alloy Steel

NASM8984

Nut, Self-Locking, Steel, 260 KSI Ft_u, 450 °F

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

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

SAE International

AS8879

Screw Threads, Controlled Radius Root With Increased Minor Diameter; General Specification for

AMS2518

Thread Compound Antiseize, Graphite-Petrolatum

AMS2759

Heat Treatment of Steel Raw Materials

AMS-C-8837

Coating, Cadmium (Vacuum Deposited)

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

ASTM International

ASTM D6251/D6251M

Boxes, Wood-Cleated Panelboard

ASTM D6880

Boxes, Wood

ASTM D5118

Box, Fabrication of Fiberboard

ASTM D1974

Box, Method of Closing, Sealing, and Reinforcing Fiberboard

ASTM E1444

Inspection Process, Magnetic Particle

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

Uniform Classification Committee

Uniform Freight Classification Rules

Copies can be obtained from the Uniform Classification Committee, Room 1106, 222 South Riverside Plaza, Chicago, Illinois 60606.

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

3. REQUIREMENTS

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- 3.2 Material. Material shall be made from alloy steel specified on the applicable specification sheet or standard.

- 3.3 Design and construction

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- 3.3.1 Dimensions. The dimensions shall be in accordance with the applicable specification sheet or standard.
- 3.3.2 Threads
- 3.3.2.1 Form and dimensions. Dimensions, form and contour shall conform to AS8879 and shall be right handed.
- 3.3.2.2 Rolling. Threads shall be generated subsequent to heat treatment by a process which incorporates single rolling operation for forming the thread below the pitch diameter.
- 3.3.2.3 Incomplete threads. The threads shall be faired onto the shank in accordance with Figure 1. The root and flanks of runout thread may deviate from true thread form but shall be smooth and free of tool marks.
- 3.3.2.4 Grain flow. The grain flow in the threads shall be continuous and shall follow the thread contour with the maximum density at the bottom of the root radius as shown on Figure 2.
- 3.3.3 Bolt heads. The bolt heads shall be forged. Machined or forged holes for reduction of weight are acceptable. Only the minimum amount of metal shall be removed from the bearing surface of the bolt head as is necessary to obtain the specified angularity and a clean, smooth surface. Grinding subsequent to final tempering is not permitted.
- 3.3.3.1 Wrenching element. The wrenching elements shall be in accordance with the applicable standard or drawing.
- 3.3.3.2 Bearing surface. The bearing surface of bolt heads shall be at right angles to the shank within the limits shown on Figure 3. The angular variation of the underside of the head must be uniform around the shank within a tolerance of 10 minutes, as measured between the bearing surface of the head and the shank at a length along the shank from head equal to the diameter of the bolt.
- 3.3.3.3 Head structure and grain flow. The head structure and grain flow lines in the fillet area immediately below the surface shall conform to the fillet contour as shown on Figure 4. The intersection of the longitudinal axis of the bolt and the transverse axis of the flow lines shall not be less than $\varnothing D/7$ inches from the bearing surface of the bolt where " $\varnothing D$ " is the nominal diameter of the bolt. The metal removed from the bearing surface shall be as small as practicable to obtain a clean, smooth surface (see 4.5.4.10).
- 3.3.4 Fillet (head-to-shank). The head-to-shank fillet radius shall be produced in such manner as to insure meeting the fatigue strength requirements specified herein. The radius shall be as specified on the applicable standard. The cold-working of the fillet radius shall be subsequent to the heat treatment of the bolt. The radius shall show no evidence of seams or inclusions (see 4.5.3.3).
- 3.3.4.1 Distortion of radius. Distortion of the radius (due to cold work) shall not be greater than a height "A" and depth "B" of .002 inches and the distorted area shall not extend beyond "C" (see Figure 5).
- 3.4 Surface texture. The surface texture of the bolts after coating shall not be greater than the values shown in Table I or as specified by the applicable standard or drawing. The surface texture shall be measured in accordance with ASME B46.1.

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SHEET 3

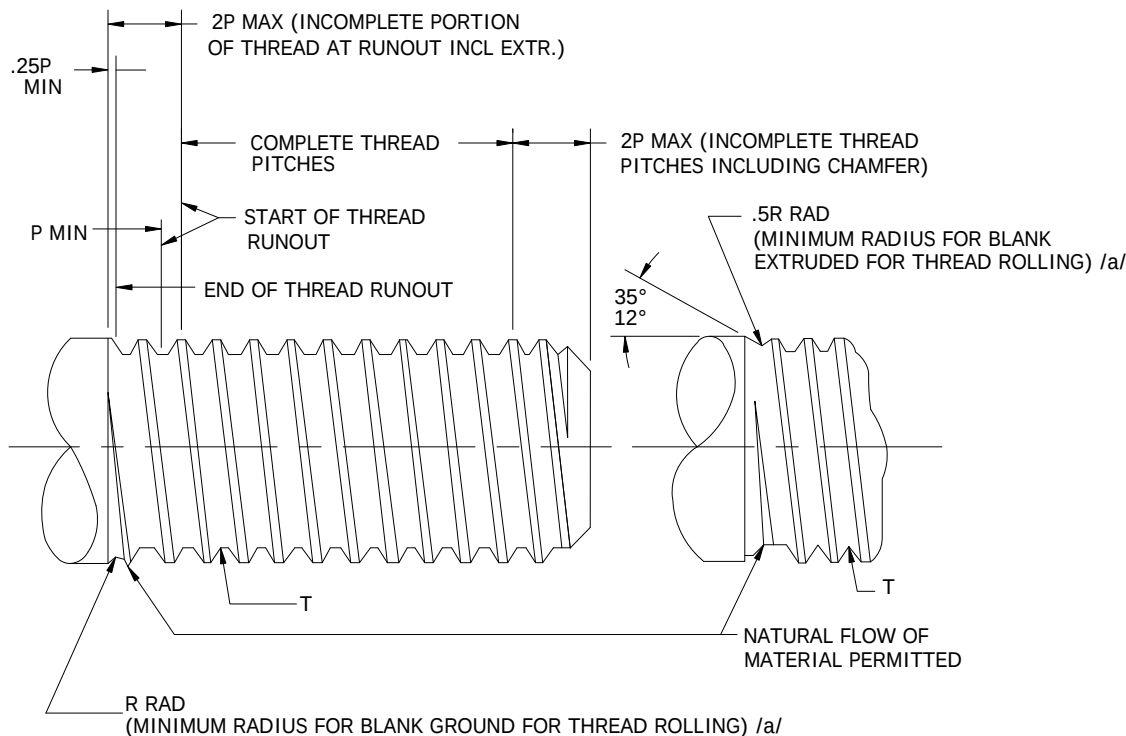


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THREAD SIZE	P (PITCH OF THREAD)	.25P (MIN)	2P (MAX)	R (MIN RUNOUT RADIUS) /b/	.5R	T (MIN ROOT RADIUS)
.1900-32	.03125	.008	.062	.012	.006	.0047
.2500-28	.03571	.009	.071	.013	.006	.0054
.3125-24	.04167	.010	.083	.015	.008	.0063
.3750-24	.04167	.010	.083	.015	.008	.0063
.4375-20	.05000	.012	.100	.018	.009	.0075
.5000-20	.05000	.012	.100	.018	.009	.0075
.5625-18	.05556	.014	.111	.020	.010	.0083
.6250-18	.05556	.014	.111	.020	.010	.0083
.7500-16	.06250	.016	.125	.023	.012	.0094
.8750-14	.07143	.018	.143	.025	.012	.0107
1.0000-12	.08333	.021	.167	.030	.015	.0125
1.1250-12	.08333	.021	.167	.030	.015	.0125
1.2500-12	.08333	.021	.167	.030	.015	.0125
1.3750-12	.08333	.021	.167	.030	.015	.0125
1.5000-12	.08333	.021	.167	.030	.015	.0125

/a/ NOT APPLICABLE AFTER THREAD ROLLING

/b/ R = .36P

FIGURE 1 – INCOMPLETE THREAD PITCHES; RUNOUT RADIUS AND ROOT RADIUS

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1000 WILSON BLVD.
ARLINGTON, VA 22209

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NAS Documents

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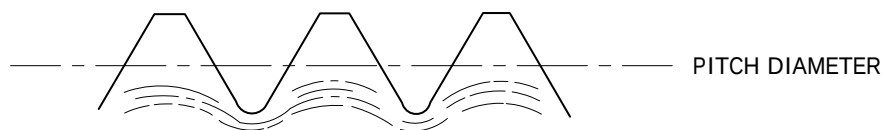


FIGURE 2 – GRAIN FLOW

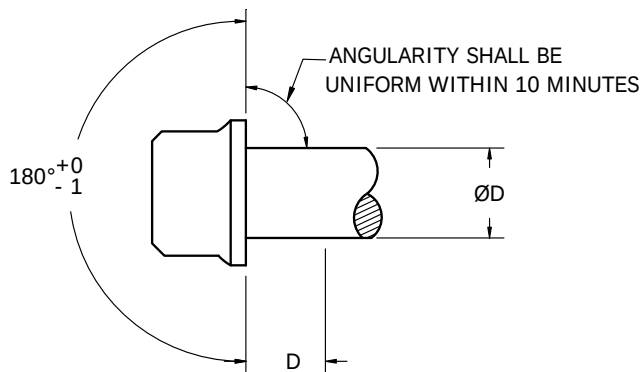


FIGURE 3 – HEAD ANGULARITY

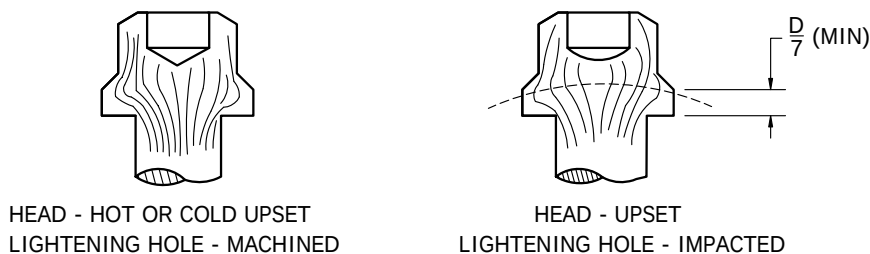


FIGURE 4 – HEAD STRUCTURE AND GRAIN FLOW

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