

MIL-B-45908B
26 September 1985
SUPERSEDING
MIL-B-45908A
25 May 1966

MILITARY SPECIFICATION

BOLT, EYE, GENERAL SPECIFICATION FOR

This specification is approved for use by all Departments
and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers eye bolts, shoulder, shoulderless
and flattened.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. The following specifications and
standards, form a part of this specification to the extent specified
herein. Unless otherwise specified, the issues of these documents shall be
those listed in the issue of the Department of Defense Index of Specifications
and Standards (DODISS) and supplement thereto, cited in the solicitation.

SPECIFICATIONS

FEDERAL

QQ-P-416 - Plating, Cadmium (Electrodeposited)
PPP-H-1581 - Hardware (Fasteners and Related Items), Packaging of

MILITARY

MIL-H-6875 - Heat Treatment of Steels, Process for

Beneficial comments (recommendations, additions, deletions) and any pertinent
data which may be of use in improving this document should be addressed to:
Commander, US Army Armament, Munitions and Chemical Command, ATTN: AMSMC-TDA-S(D),
Dover, New Jersey 07801-5001, by using the self-addressed Standardization
Document Improvement Proposal (DD Form 1426) appearing at the end of this
document or by letter.

FSC 5306

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MIL-B-45908B

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 - Inspection Methods for Acceptability of UN, UNR, UNJ, M and MJ Screw-Threads

MILITARY

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-130 - Identification Marking of U.S. Military Property
- MS51937 - Bolt, Eye-Shoulder

(Copies of specifications, standards, handbooks, drawings, publications and other Government documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity).

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted shall be those listed in the issue of the DODISS specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS shall be the issue of the nongovernment documents which is current on the date of the solicitation.

ASTM

ASTM E112 - Grain Size, Determining Average

(Applications for copies should be addressed to ASTM, 1916 Race Street, Philadelphia, PA 19103).

SOCIETY OF AUTOMOTIVE ENGINEERS, INC.

AMS 6382J-81 - Steel Bars, Forgings and Rings

SAE J429-83 - Mechanical and Material Requirements For Externally Threaded Fasteners

(Applications for copies should be addressed to Society of Automotive Engineers Inc., 400 Commonwealth Drive, Warrendale, PA 15096).

(Nongovernment standards and other publications are normally available from the organizations which prepare or which distribute the documents. These documents also may be available in or through libraries or other informational services).

MIL-B-45908B

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein (except for associated MS standards), the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 MS sheet. The individual item requirements shall be as specified herein and in accordance with the applicable MS sheet. In the event of any conflict between the requirements of this specification and the MS sheet, the latter shall govern.

3.2 Material. Recycled and reclaimed materials shall be used to the maximum extent practicable.

3.2.1 Shoulder eye bolts. Shoulder eye bolts shall be forged from forging quality steel having a grain size of ASTM 5 or finer as specified in ASTM E112. The sulphur content of the steel shall not exceed .05 percent, and the phosphorous content shall not exceed .04 percent. Welding to cover forging defects shall not be permitted.

3.2.2 Shoulderless and flattened eye bolts. Shoulderless and flattened eye bolts shall be Alloy Steel, Grade 4140(UNS G41400) as specified in AMS 6382.

3.3 Heat treatment. Eye bolts, shall be heat treated, before threading, in accordance with MIL-H-6875. Finished eye bolts shall be descaled.

3.4 Dimensions. Dimensions and tolerances shall be in accordance with the applicable MS sheet.

3.5 Threads.

3.5.1 Series and class of threads. Series and class of threads shall be Unified Coarse Series, Class 2A (UNC-2A) or Unified Fine Series, Class 2A (UNF-2A) in accordance with FED-STD-H28/2 as indicated by the applicable MS sheet. Acceptability of screw threads shall be in accordance with FED-STD-H28/20, System 21.

3.5.2 Length of threads. The thread length shall be the distance from the point of the eye bolt shank to the last fully formed thread as designated by the applicable MS sheet part number (see 3.1).

MIL-B-45908B

3.6 Protective coating and surface treatment. The protective coating and surface treatment of eye bolts when specified in the applicable MS sheet shall be as follows.

3.6.1 Cadmium plate. Alloy steel eye bolts shall be cadmium plated in accordance with QQ-P-416, Type II, Class 3, as specified in the applicable MS sheet (see 3.1).

3.7 Mechanical properties. Mechanical properties for eye bolts shall be as specified in the applicable MS sheet (see 3.1).

3.7.1 Proof load. Eye bolts shall be capable of withstanding proof loads as specified in the applicable MS sheet, and when tested in conformance with 4.5.3.

3.8 Marking. Eye bolts shall be marked in accordance with MIL-STD-130.

3.9 Workmanship. Finished bolts shall be uniform in quality and appearance. Surfaces shall be free of foreign matter. Bolt surfaces in the unplated condition shall be free of cracks, bursts, folds, tool marks, seams, voids on the bearing surface, nicks and gouges.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.2 Quality conformance inspection. Quality conformance inspection shall be as specified in Table I.

MIL-B-45908B

TABLE I. QUALITY CONFORMANCE INSPECTION.

INSPECTION	REQUIREMENT PARAGRAPH	TEST PARAGRAPH
GROUP A		
Dimensions	3.4	4.4.1
Protective coating and surface treatment. (Visual)	3.6	4.4.1
Workmanship (Visual)	3.9	4.4.1
GROUP B		
Grain size	3.2.1	4.5.2
Proof load	3.7.1	4.5.3

4.2.1 Inspection lot. An inspection lot shall consist of all eyebolts of the same size and material, manufactured under essentially the same conditions and offered for inspection at any one time.

4.2.2 Sampling for examination. A random sample of eyebolts shall be taken from each lot in accordance with MIL-STD-105, Inspection Level II. The Acceptable Quality Levels (AQL) shall be as specified in Table II and shall apply to the group of defects and not to each defect.

4.2.3 Sampling for tests. For the proof load test, a random sample of eyebolts shall be taken from each lot in accordance with MIL-STD-105, Inspection Level S3. The AQL shall be 1.5 percent defective.

4.3 Inspection of packaging. The sampling and inspection of the preservation, packing and container marking shall be in accordance with requirements of PPP-II-1581.

4.4 Methods of inspection.

4.4.1 Visual and dimensional. The eye bolts shall be examined to verify that physical dimensions, surface finish and workmanship are in accordance with the applicable requirements of 4.2.2 and Table II.

MIL-B-45908B

TABLE II. CLASSIFICATION OF DEFECTS.

CATEGORY	DEFECT	INSPECTION METHOD
Critical	None defined	
Major	AQL = 1.5 percent defective	
101	Grain size, not as specified (see 3.2.1).	Test ^{1/}
102	Inside diameter of eye not as specified (see 3.4).	CIE ^{2/}
103	Diameter of shank not as specified (see 3.4).	CIE ^{2/}
104	Eye section diameter not as specified (see 3.4).	CIE ^{2/}
105	Diameter of shoulder not as specified (see 3.4).	CIE ^{2/}
106	Over length not as specified (see 3.4).	CIE ^{2/}
107	Length of shank not as specified (see 3.4).	CIE ^{2/}
108	Height of shoulder not as specified (see 3.4).	CIE ^{2/}
109	Series and class of threads, maximum pitch diameter not as specified (see 3.5.1).	Go Ring Gage
110	Series and class of threads, minimum pitch diameter not as specified (see 3.5.1).	Lo Ring Gage
111	Length of threads not as specified (see 3.5.2).	CIE ^{2/}
112	Marking (see 3.8).	Visual
Minor	AQL = 4.0 percent defective	
201	Heat treatment of finished eyebolts not descaled (see 3.3)	Visual

^{1/} See ASTM E112^{2/} Commercial Inspection Equipment4.5 TEST

4.5.1 Material inspection. Material inspection shall consist of certification supporting verifying data that the materials used in fabricating the eye bolts are in accordance with the applicable requirements of 3.1, 3.2, 3.2.1 and 4.2.1.

MIL-B-45908B

4.5.2 Grain size. Shoulder eyebolts shall be tested for grain size of 5, or finer, as specified in ASTM E112.

4.5.3 Proof load. Each sample eye bolt, taken as specified in 4.2.3 shall be subjected to proof load test in accordance with SAE J429.

5. PACKAGING

5.1 Preservation, Packaging, Packing and Marking. Preservation, Packaging, Packing and Marking shall be in accordance with PPP-H-1581 (see 6.2).

6. NOTES

6.1 Intended use. The eyebolts covered by this specification are a standard commercial product used primarily for overhead load lifting.

6.2 Ordering data.

6.2.1 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number and date of this specification and applicable MS sheet (see 3.1).
- b. Applicable MS sheet part number (see 3.1).
- c. Level (degree) of protection, in accordance with PPP-H-1581, ordering data (see 5.1).

6.3 Safe working loads. For design purposes, the safe working loads are as specified in MS51937.

6.4 Military procurement. Whenever possible, military use of eyebolts shall be limited to those sizes shown on MS51937.

Custodians:

Army - AR
Air Force - 99

Preparing Activity:

Army - AR

Review activities:

Army - AT, GL
Air Force - 82
DLA - IS
NSA - NS

(Project 5306-0831)

User activities:

Army - AL
Navy - MC, SH

Agent:

DLA - IS

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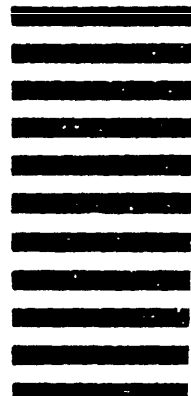
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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL*(See Instructions - Reverse Side)*

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5. PROBLEM AREAS			
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