METRIC

DOD-T-63549
7 September 1982

MILITARY SPECIFICATION

THUMBSCREW, WING HEAD, METRIC, 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 one type of metrically dimensioned wing head thumbscsrew (see 6.1).

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

FEDERAL

QQ-B-613	-	Brass, Leaded and Non-Leaded: Flat Products (Plate, Bar, Sheet and Strip)
QQ-B-626	-	Brass, Leaded and Non-Leaded: Rod, Shapes, Forgings and Flat Products with Finished Edges (Bar and Strip)
QQ-P-416	-	Plating, Cadmium (Electrodeposited)
QQ-Z-325	-	Zinc Coating, Electrodeposited, Requirements for
PPP-H-1581	-	Hardware (Fasteners and Related Items), Packaging of

MILITARY

MIL-F-495	-	Finish, Chemical, Black, for Copper Alloys
DOD-T-63549/1	-	Thumbscrew, Wing Head, Metric

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 Research and Development Command, ATTN: DRDAR-TST-S, Dover, NJ 07801 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

FSC 5305

STANDARDS

FEDERAL

FED-STD-H28/21 - Screw Thread Standards for Federal Services, Section 21, Metric Screw Threads
FED-STD-66 - Steel: Chemical Composition and Hardenability

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-1312 - Fasteners, Test Methods

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

2.2 Other publications. The following document(s) 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.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI B46.1 - Surface Texture

(Applications for copies should be addressed to the American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.)

(Industry association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references, other than specification sheets, 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 requirements of this specification and the specification sheet, the latter shall govern.

3.2 Material. Recycled and reclaimed materials shall be used to the maximum extent practicable. Wing head thumbscrews shall be made of the following materials, as specified (see 3.1).

3.2.1 Carbon steel. Carbon steel shall be in accordance with FED-STD-66, with a minimum ultimate tensile strength of 400 MPa.

3.2.2 Brass. Brass shall be in accordance with QQ-B-613 or QQ-B-626 with a minimum ultimate tensile strength of 380 MPa.

3.3 Hardness. The hardness of carbon steel wing head thumbscrews shall be 63-68HRB.

3.4 Protective finish. Wing head thumbscrews shall be protected with one of the following finishes, as specified (see 3.1).

3.4.1 Cadmium plating. Electrodeposited cadmium plating on steel wing head thumbscrews shall conform to QQ-P-416, type II, class 3 (5.1 µm thick).

3.4.2 Zinc coating. Zinc coating on steel wing head thumbscrews shall conform to QQ-Z-325, type II, class 3 (5.1 µm thick).

3.4.3 Black finish. Black finish on brass wing head thumbscrews shall conform to MIL-F-495.

3.5 Dimensions. Dimensions and tolerances shall conform to the applicable specification sheet and except for thread surfaces shall apply after plating or coating.

3.6 Threads. Wing head thumbscrew threads shall conform to the "M" profile and tolerance class 6g, before plating or coating, as specified on the applicable specification sheet and as defined in FED-STD-H28/21.

3.7 Sharp edges. Sharp edges shall be rounded, chamfered or broken, 0.1 mm minimum.

3.8 Surface texture. Wing head thumbscrew threads and bearing surface shall have a surface texture of 3.2 µm maximum after plating or coating determined in accordance with ANSI B46.1.

3.9 Bearing surface. The bearing surface of the wing head thumbscrew shoulder shall be perpendicular to the axis of the screw shank within 4 degrees.

3.10 Workmanship. Finished wing head thumbscrews shall be uniform in quality and appearance. Surfaces shall be free of foreign matter. Surfaces in the unplated or uncoated 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.

4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:

a. Materials inspection (see 4.3)
b. Quality conformance inspection (see 4.4)

4.3 Materials inspection. Materials inspection shall consist of certification supported by data verifying that materials used in fabricating wing head thumbscrews are in accordance with 3.2 and 3.4.

4.4 Quality conformance inspection.

4.4.1 Inspection lot. An inspection lot shall consist of all wing head thumbscrews covered by a single specification sheet, produced under essentially the same conditions and offered for inspection at one time.

4.4.2 Rejected lots. If an inspection lot is rejected, the contractor may rework it to correct the defects, or screen out the defective units, and resubmit for reinspection. Resubmitted lots shall be inspected using tightened inspection. Such lots shall be separate from new lots, and shall be clearly identified as reinspected lots.

4.4.3 Sampling for visual dimensional examination. Sampling shall be in accordance with MIL-STD-105 inspection level II with an acceptable quality level (AQL) of 2.5 percent defective for major defects. For minor defects, inspection level I with an AQL of 4.0 percent defective shall apply.

4.4.4 Sampling for test. Samples shall be selected from lots which have been visually and dimensionally examined and accepted. Sampling shall be in accordance with MIL-STD-105, inspection level S-2. The AQL shall be 4.0 percent defective.

4.5 Packaging inspection. The sampling and inspection of the preservation, packaging, packing and container marking shall be in accordance with PP-H-1581.

TABLE I. Quality conformance inspection.

Examination or test	Requirements paragraph	Examination or test paragraph
Group A		
Dimensions	3.5	4.6.1
Sharp edges	3.7	4.6.1
Bearing surface	3.9	4.6.1
Workmanship	3.10	4.6.1
Group B		
Hardness	3.3	4.6.3
Protective finish	3.4	4.6.4
Surface texture	3.8	4.6.5
Group C		
Tensile strength	3.2	4.6.2

4.6 Methods of inspection.

4.6.1 Visual and dimensional examination. Samples taken as specified in 4.4.3 shall be thoroughly examined to determine conformance with this specification and applicable specification sheet. Examination shall be conducted in accordance with table I.

4.6.2 Tensile strength. Samples taken as specified in 4.4.4 shall be tested for tensile strength in accordance with test method 8 of MIL-STD-1312, to verify conformance with 3.2.

4.6.3 Hardness. When specified (see 6.2), sample wing head thumbscrews taken as specified in 4.4.4 shall be tested for hardness in accordance with MIL-STD-1312, test method 6.

4.6.4 Protective finish. When specified (see 6.2), samples taken as specified in 4.4.4 shall be inspected for adequacy of the finish in accordance with the applicable specification of 3.4.

4.6.5 Surface texture. Samples taken as specified in 4.4.4 shall be examined for conformance with surface texture requirements specified in 3.8. Samples shall be examined prior to plating or coating by an optical method of measurement in accordance with ANSI B46.1.

5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be in accordance with PPP-H-1581 (see 6.2).

6. NOTES

6.1 Intended use. Thumbscrews covered by this specification have a wing-shaped head designed for manual turning without assistance of a driver or wrench.

6.2 Ordering data. Acquisition documents should specify the following:

a. Title, number and date of this specification and the applicable specification sheet.
b. Applicable specification sheet part number (see 3.1).
c. Hardness test, if required (see 4.6.3).
d. Whether inspection in accordance with the applicable finish specification is required (see 4.6.4).
e. Surface texture examination, if required (see 4.6.5).
f. Degree of protection, in accordance with PPP-H-1581, ordering data (see 5.1).

Custodians:
Army - AR
Air Force - 99

Review activities:
Army - AV, EA
Air Force - 11
DLA - IS
NSA - NS

User activities:
Army - ME, AT
Navy - MC, SH

Agent:
DLA - IS

Preparing activity:
Army - AR

(Project 5305-1477)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

OMB Approval
No 22-R255

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DOCUMENT IDENTIFIER AND TITLE
DOD-T-63549 THUMBSCREW, WING HEAD, METRIC, GENERAL SPECIFICATION FOR

NAME OF ORGANIZATION AND ADDRESS

CONTRACT NUMBER

MATERIAL PROCURED UNDER A
☐ DIRECT GOVERNMENT CONTRACT ☐ SUBCONTRACT

1 HAS ANY PART OF THE DOCUMENT CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?
A GIVE PARAGRAPH NUMBER AND WORDING

B RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES

2 COMMENTS ON ANY DOCUMENT REQUIREMENT CONSIDERED TOO RIGID

3 IS THE DOCUMENT RESTRICTIVE?
[ ] YES [ ] NO *(If "Yes", in what way?)*

4 REMARKS

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