

MIL-A-3962E
19 May 1986
SUPERSEDING
MIL-A-3962D
24 September 1979

MILITARY SPECIFICATION

ANCHORS, GROUND, ARROWHEAD WITH DRIVING EQUIPMENT

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

1. SCOPE

1.1 Scope. This document covers arrowhead ground anchors with single cable assemblies and driving equipment.

1.2 Classification.

- * 1.2.1 Ground anchor assemblies. The ground anchor assemblies shall be of the following sizes, grades, and styles, as specified (see 6.2):

Size 4 inch:

| | |
|---------|---|
| Grade A | - Aluminum |
| Style 1 | - Cable without thimble, 3100-pound load |
| Style 5 | - Cable or wire with thimble, 1500-pound load |
| Grade B | - Malleable Iron |
| Style 1 | - Cable without thimble, 3100-pound load |
| Style 2 | - Cable with thimble, 3100-pound load |
| Style 5 | - Cable or wire with thimble, 1500-pound load |

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to U.S. Army Natick Research, Development, and Engineering Center, Natick, MA 01760-5014, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 4030

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

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Size 6 inch:

| | |
|---------|--|
| Grade A | - Aluminum |
| Grade B | - Malleable Iron |
| Style 3 | - Cable without thimble, 5500-pound load |
| Style 4 | - Cable with thimble, 5500-pound load |

Size 8 inch:

| | |
|---------|--|
| Grade A | - Aluminum |
| Grade B | - Malleable Iron |
| Style 3 | - Cable without thimble, 5500-pound load |
| Style 4 | - Cable with thimble, 5500-pound load |

1.2.2 Driving equipment. The ground anchor driving equipment consisting of driving rod, head, and handle shall be of the following sizes, as specified (see 6.2):

Size 4 inch
Size 6 inch
Size 8 inch

2. APPLICABLE DOCUMENTS

2.1 Government documents. Unless otherwise specified, the following documents of the issue in effect on date of invitation for bids or request for proposal form a part of this document to the extent specified herein.

SPECIFICATIONS

FEDERAL

| | |
|-----------|---------------------------------------|
| PPP-B-601 | - Boxes, Wood, Cleated-Plywood |
| PPP-B-621 | - Boxes, Wood, Nailed and Lock-Corner |
| PPP-B-636 | - Boxes, Shipping, Fiberboard |

MILITARY

| | |
|-------------|-----------------------------|
| MIL-E-52798 | - Enamel, Alkyd, Camouflage |
|-------------|-----------------------------|

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STANDARDS

MILITARY

- | | |
|-------------|---|
| MIL-STD-105 | - Sampling Procedures and Tables for Inspection by Attributes |
| MIL-STD-129 | - Marking for Shipment and Storage |

DRAWINGS

U.S. ARMY NATICK RESEARCH, DEVELOPMENT, AND ENGINEERING CENTER

- | | |
|---------|---|
| 4-1-196 | - Anchors, Ground, Arrowhead, with Driving Equipment; Assemblies and Details, 4 Inch Aluminum Anchors |
| 4-1-197 | - Anchors, Ground, Arrowhead, with Driving Equipment; Assemblies and Details, 4 Inch Malleable Iron Anchors |
| 4-1-198 | - Anchors, Ground, Arrowhead, with Driving Equipment; Assemblies and Details, 6 and 8 Inch Mall Iron and Aluminum Anchors |
| 4-1-199 | - Anchors, Ground, Arrowhead, with Driving Equipment; Miscellaneous Details |

(Copies of documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

- * **2.2 Other publications.** Unless otherwise specified, the following document of the issue in effect on the date of invitation for bids or request for proposal forms a part of this document to the extent specified herein.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D 3951 - Standard Practice for Commercial Packaging

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

(Technical society and technical association documents are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

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

3. REQUIREMENTS

3.1 Design. The ground anchor assemblies and driving equipment shall conform to the material (see 6.3), construction, finish, and marking requirements specified herein and on the drawings listed in 2.1.

3.2 Load requirements for ground anchors with cable assemblies.

3.2.1 Size 4 inch, styles 1 and 2. The anchor assembly shall withstand a load of not less than 3100 pounds without breakage when tested as specified in 4.3.1.

3.2.2 Size 4 inch, style 5. The anchor assembly shall withstand a load of not less than 1500 pounds without breakage when tested as specified in 4.3.1.

3.2.3 Sizes 6 and 8 inch, styles 3 and 4. The anchor assembly shall withstand a load of not less than 5500 pounds without breakage when tested as specified in 4.3.1.

3.3 Finish.

3.3.1 Anchor bodies. Prior to application of finish, anchor bodies shall have all burrs, flashings, and sharp edges removed.

3.3.1.1 Aluminum bodies. Aluminum bodies shall be given no finish.

3.3.1.2 Malleable iron bodies and pins, and pins for aluminum anchor bodies. The assembled malleable iron anchor body and pin and the pin for aluminum bodies shall be coated with aluminum pigmented enamel or coated with enamel conforming to MIL-E-52798 (lusterless Forest Green in color) or shall be galvanized.

3.3.1.3 Driving rods and driving heads. Driving rods and driving heads shall be cleaned free of oil, grease, and other foreign matter and then coated with enamel conforming to MIL-E-52798, lusterless Forest Green in color. Holes in driving rods and driving heads shall be free of excess enamel to ensure proper fit.

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3.4 Marking. All characters on the anchor bodies shall be cast in raised letters and shall include the manufacturer's name, trade name or trademark, and year of contract. Except as otherwise specified on drawings, characters shall be not less than 1/4 inch in size.

3.5 Workmanship. The finished items shall be clean, free of burrs, sharp edges, or corroded areas and shall not be broken or malformed.

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 document 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 document shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the document 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.

* 4.1.2 Responsibility for dimensional requirements. Unless otherwise specified in the contract or purchase order, the contractor is responsible for assuring that all specified dimensions have been met. When dimensions cannot be examined on the end item, inspection shall be made at any point or at all points in the manufacturing process necessary to assure compliance with all dimensional requirements.

4.2 Quality conformance inspection. Unless otherwise specified, sampling for inspection shall be performed in accordance with MIL-STD-105.

4.2.1 Component and material inspection. In accordance with 4.1, components and materials shall be inspected in accordance with all the requirements of referenced documents unless otherwise excluded, amended, modified, or qualified in this document or applicable purchase document.

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- * 4.2.2 End item visual examination. The end item shall be examined for the defects listed in table I. The lot size shall be expressed in units of anchors. The sample unit shall be one anchor. The inspection level shall be II and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 2.5 for major defects and 6.5 for total (major and minor combined) defects.

TABLE I. Classification of visual defects

| Examine | Defect | Classification | |
|--|--|----------------|--------------|
| | | <u>Major</u> | <u>Minor</u> |
| Finish (general) | Type of finish not as specified, or not in accordance with the manufacturer's standard commercial practice | | 201 |
| | Color not as specified | | 202 |
| | Evidence of dirt, grease, or foreign matter embedded in coating | | 203 |
| | Excessive enamel in driving rod and driving head holes | | 204 |
| | | | |
| Design, construction, and workmanship, general (applicable to all components assemblies) | Not size, grade, style, specified | 101 | |
| | Any part missing or not as specified | 102 | |
| | Metal not clean, free of burrs or sharp edges | | 103 |
| | Broken, malformed, or corroded area | 104 | |
| Marking for identification | Missing, incomplete, not legible, or wrong type, size, or location | | 205 |

- * 4.2.3 End item dimensional examination. The end item shall be examined for conformance to the dimensions specified in table II. Any dimension that is not within the specified tolerance shall be classified as a defect. The lot size shall be expressed in units of anchors. The sample unit shall be one anchor. The inspection level shall be S-2, and the AQL, expressed in terms of defects per hundred units, shall be 4.0.

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TABLE II. Dimensional requirements

| Drawing | Size |
|---------|---|
| 4-1-196 | 0.375 \pm 0.006 diameter of pin |
| 4-1-197 | 0.375 \pm 0.006 diameter of pin |
| 4-1-198 | 0.500 \pm 0.006 diameter of pin |
| 4-1-199 | 0.437 \pm 0.010 diameter of hole in rod |
| 4-1-199 | 0.562 \pm 0.010 diameter of hole in rod |

4.2.4 End item testing. One item selected at random from the first lot shall be tested as specified in 4.3.1. Failure of the test shall be cause for rejection of the lot.

- * 4.2.5 Packaging examination. The fully packaged end items shall be examined for the defects listed below. The lot size shall be expressed in units of shipping containers. The sample unit shall be one shipping container fully packaged. The inspection level shall be S-2, and the AQL, expressed in terms of defects per hundred units, shall be 2.5.

| <u>Examine</u> | <u>Defect</u> |
|--|---|
| Markings (exterior and interior) | Omitted; incorrect; illegible; of improper size, location, sequence, or method of application |
| Materials | Any component missing, damaged, or not as specified |
| Contents (exterior and interior container) | Number per container is more or less than required |

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4.3 Test methods.

- * 4.3.1 Load test. With a load tester at a rate not greater than 2000 pounds per minute, the cable or wire assembly, as applicable, shall meet the load requirements as specified for the 4-inch size in 3.2.1 and 3.2.2 and for the 6- and 8-inch sizes as specified in 3.2.3. Any evidence of failure shall constitute failure of this test.

5. PACKAGING

5.1 Preservation. Preservation shall be level A or Commercial, as specified (see 6.2).

5.1.1 Level A.

5.1.1.1 Ground anchor assemblies. No preservation is required.

5.1.1.2 Driving equipment, 4-inch anchor assembly. One driving rod, driving head, and holding handle for 4-inch anchor assembly shall be unit packed in a snug-fitting panel folder conforming to style FPF, type CF, variety SW, or type SF, class weather-resistant of PPP-B-636. The driving rod shall be positioned on top of the holding handle and the driving head inserted on one end of the driving rod. A fiberboard or wood insert shall be placed in the end of the folder opposite the driving head. The insert shall be not less than 3/8-inch thick, shall be provided with a hole to accommodate the driving rod, and shall be a snug fit in the folder to prevent any movement of the rod while in transit. Each box shall be securely closed.

5.1.1.3 Driving equipment, 6- and 8-inch anchor assembly. One driving rod, driving head, and holding handle for 6- and 8-inch anchor assemblies shall be unit packed as specified in 5.1.1.2.

- * 5.1.2 Commercial. The ground anchor assemblies and driving equipment shall be preserved in accordance with ASTM D 3951.

5.2 Packing. Packing shall be level A, B, or Commercial, as specified (see 6.2).

5.2.1 Level A packing.

5.2.1.1 Ground anchor assemblies. Ground assemblies of one size, grade, and style only shall be packed in the most compact manner in the quantities specified in table III in a snug-fitting shipping container conforming to overseas type, style A of PPP-B-601 or class 2, style 2, 4, or 4 1/2, type 3 load of PPP-B-621. Closure and strapping shall be in accordance with PPP-B-601 or PPP-B-621, as applicable.

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TABLE III. Packing of items

| Item | Quantity per shipping container |
|--|------------------------------------|
| Ground anchor assemblies: | |
| Size 4 inch, grade A, style 1 | 150 each |
| Size 4 inch, grade A, style 5 | 200 each |
| Size 4 inch, grade B, style 1 or 2 | 75 each |
| Size 4 inch, grade B, style 5 | 100 each |
| Size 6 inch, grade A, style 3 | 100 each |
| Size 6 inch, grade A, style 4 | 75 each |
| Size 6 inch, grade B, style 3 or 4 | 40 each |
| Size 8 inch, grade A, style 3 | 50 each |
| Size 8 inch, grade A, style 4 | 40 each |
| Size 8 inch, grade B, style 3 or 4 | 20 each |
| Driving equipment: | |
| Size 4 inch, driving rod, head, and holding handle | 15 each |
| Size 6 and 8 inch, driving rod, head, and holding handle | 8 each |

5.2.1.2 Driving equipment. Driving rods and heads, and holding handles, preserved as specified in 5.1, shall be packed in the quantities specified in 4.2.3, in a snug-fitting container conforming to overseas type, style A of PPP-B-601 or class 2, style 2, 4, or 4 1/2, type 3 load of PPP-B-621. The contents shall be arranged within the container so that, as far as practical, an equal number of driving heads are at each end of the container in order to evenly distribute the weight. Closure and strapping shall be in accordance with PPP-B-601 or PPP-B-621, as applicable.

5.2.2 Level B packing.

5.2.2.1 Ground anchor assemblies. Ground anchor assemblies of one size, grade, and style only shall be packed in the most compact manner in the quantities specified in table III in a snug-fitting shipping container conforming to domestic type, style A of PPP-B-601, or class 1, style 2, 4, or 4 1/2, type 3 load of PPP-B-621. Closure and strapping shall be in accordance with PPP-B-601 or PPP-B-621, as applicable.

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5.2.2.2 Driving equipment. Driving rods and heads, and holding handles, preserved as specified in 5.1, shall be packed in the quantities specified in table III in a snug-fitting shipping container conforming to domestic type, style A of PPP-B-601 or class 1, style 2, 4, or 4 1/2, type 3 load of PPP-B-621. The contents shall be arranged within the container so that, as far as practical, an equal number of driving heads are at each end of the container in order to evenly distribute the weight. Closure and strapping shall be in accordance with PPP-B-601 or PPP-B-621, as applicable.

* 5.2.3 Commercial. Ground anchor assemblies and driving items shall be packed in accordance with ASTM D 3951.

* 5.3 Marking. In addition to any special marking required by the contract or purchase order, unit packs and shipping containers shall be marked in accordance with MIL-STD-129 or ASTM D 3951, as applicable.

6. NOTES

6.1 Intended use. The ground anchor assemblies with driving equipment are intended for securing tents, shelters, aircraft, small utility poles, and communication masts to the ground.

6.2 Ordering data. Acquisition documents should specify the following:

- a. Title, number, and date of this document.
- b. Size, grade, and style of ground anchor assemblies required (see 1.2.1).
- c. Size of ground anchor driving equipment parts required (see 1.2.2).
- d. Selection of applicable levels of preservation and packing (see 5.1 and 5.2).

6.3 Recycled material. The contractor is encouraged to use recycled material when practical, provided that it meets the requirements of this document (see 3.1).

6.4 Changes from previous issue. The margins of this document have been marked with an asterisk (*) to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only, and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content, as written, irrespective of the marginal notations and relationship to the last previous issue.

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Custodians:

Army - GL
Air Force - 99

Review activities:

Army - EA, MD
DLA - IS

Preparing activity:

Army - GL
Project No. 4030-0198

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL*(See Instructions - Reverse Side)***1. DOCUMENT NUMBER**MIL-A-3962 E**2. DOCUMENT TITLE**

Anchors, Ground, Arrowhead with Driving Equipment

3a. NAME OF SUBMITTING ORGANIZATION**4. TYPE OF ORGANIZATION (Mark one)**☐

VENDOR

☐

USER

☐

MANUFACTURER

☐

OTHER (Specify): _____

b. ADDRESS (Street, City, State, ZIP Code)**5. PROBLEM AREAS****a. Paragraph Number and Wording:****b. Recommended Wording:****c. Reason/Rationale for Recommendation:****6. REMARKS****7a. NAME OF SUBMITTER (Last, First, MI) - Optional****b. WORK TELEPHONE NUMBER (Include Area Code) - Optional****c. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional****8. DATE OF SUBMISSION (YYMMDD)**