

## FEDERAL SPECIFICATION

## THIMBLES, ROPE

*This specification was approved by the Commissioner, Federal Supply Services, General Services Administration, for the use of all Federal agencies.*

## 1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers thimbles for fiber rope and wire rope.

## 1.2 Classification.

1.2.1 Types. Thimbles covered by this specification shall be furnished in the following types, as specified (see 6.2):

Type I—Thimbles for fiber rope.

Type II—Thimbles, light, for fiber and wire ropes.

Type III—Thimbles, heavy for wire rope.

## 2. APPLICABLE DOCUMENTS

2.1 The following specifications and standards, of the issues in effect on date of invitation for bids, form a part of this specification to the extent specified herein.

*Federal Specifications:*

QQ-S-698—Steel, Sheet and Strip, Low-Carbon.

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-640—Boxes, Fiberboard, Corrugated, Triple-Wall.

*Federal Standard:*

Fed. Std. No. 123—Marking for Domestic Shipment (Civilian Agencies).

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Informa-

tion in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

(Single copies of this specification and other product specifications required by activities outside the Federal Government for bidding purposes are available without charge at the General Services Administration Regional Offices in Boston, New York, Washington, D.C., Atlanta, Chicago, Kansas City, Mo., Dallas, Denver, San Francisco, Los Angeles, and Seattle, Wash.

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications and Standards from established distribution points in their agencies.)

*Military Specification:*

MIL-Z-17871—Zinc-Coating (Hot-Dip Galvanizing).

*Military Standards:*

MIL-STD-105—Sampling Procedures and Tables for Inspection by Attributes.

MIL-STD-129—Marking for Shipment and Storage.

(Copies of Military Specifications and Standards required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

## 3. REQUIREMENTS

3.1 Material. The thimbles shall be made of cold-rolled or hot-rolled steel conforming to QQ-S-698.

3.2 Finish. The thimbles shall be hot-dip

galvanized in accordance with MIL-Z-17871. The zinc coating shall be adherent, smooth, and free from uncoated spots, injurious lumps, blisters, gritty areas, acid spots, black spots, and dross or flux. The zinc coating shall be free from any area of paint or other coating, such as aluminum, which indicates the hiding or disguise of any repair, blemish, or other defect.

3.3 Construction. The thimbles shall be fur-

nished closed and shall be constructed as follows:

3.3.1 *Type I*. Fiber rope thimbles shall be of split round construction conforming to the design shown in figure 1 and to the dimensions and weights shown in table I. The width of score shall be greater than the nominal size by 1/32 inch for sizes smaller than 1/2 inch and by 1/16 inch for sizes 1/2 inch and larger.

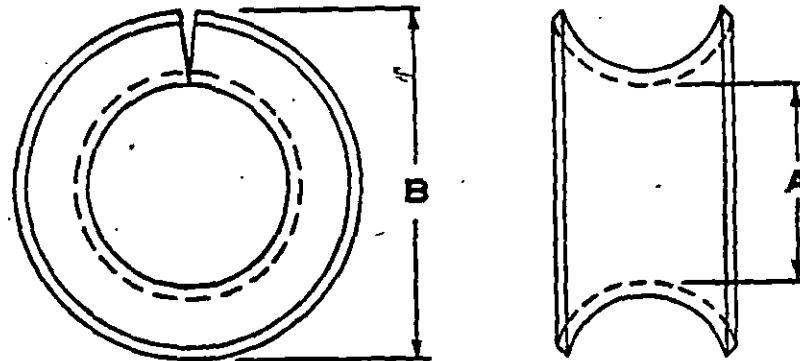


FIGURE 1. Type I, split round fiber rope thimbles.

TABLE I. Dimensions and weights, type I thimbles

| Thimble size <sup>1/</sup> |                | Diameter, minimum |               | Weight of 10 thimbles, minimum |
|----------------------------|----------------|-------------------|---------------|--------------------------------|
| Nominal diameter           | Circumference  | Inside (A)        | Outside (B)   |                                |
| <i>Inches</i>              | <i>Inches</i>  | <i>Inches</i>     | <i>Inches</i> | <i>Pounds</i>                  |
| 5/16                       | 3/4 to 1       | 3/8               | 3/4           | 0.15                           |
| 3/8                        | 1-1/8          | 1/2               | 7/8           | 0.22                           |
| 7/16                       | 1-1/4          | 5/8               | 1             | 0.35                           |
| 1/2                        | 1-1/2          | 3/4               | 1-1/4         | 0.53                           |
| 9/16                       | 1-3/4          | 3/4               | 1-5/16        | 1.00                           |
| 5/8                        | 1-7/8          | 7/8               | 1-1/2         | 1.05                           |
| 11/16                      | 2              | 15/16             | 1-1/2         | 1.10                           |
| 3/4                        | 2-1/4          | 1-1/8             | 1-3/4         | 1.60                           |
| 7/8                        | 2-1/2 to 2-3/4 | 1-3/16            | 2             | 2.00                           |
| 1                          | 3              | 1-1/4             | 2-1/4         | 3.00                           |
| 1-1/8                      | 3-1/4 to 3-1/2 | 1-3/8             | 2-1/2         | 3.50                           |
| 1-1/4                      | 3-3/4          | 1-1/2             | 2-3/4         | 4.80                           |
| 1-5/8                      | 4              | 1-3/4             | 3             | 6.00                           |
| 1-1/2                      | 4-1/2          | 2                 | 3-1/2         | 10.00                          |
| 1-3/4                      | 5 to 5-1/2     | 2-3/8             | 4             | 15.00                          |
| 2                          | 6              | 2-5/8             | 5             | 25.00                          |

<sup>1/</sup> Based on the rope size.

3.3.2 *Type II*. Light thimbles shall be of the split oval construction, semi-circular at the closed ends, with the sides tapering together at the free ends. The free ends shall

have a rounded shape. Light thimbles shall conform to the design shown in figure 2 and to the dimensions shown in table II.

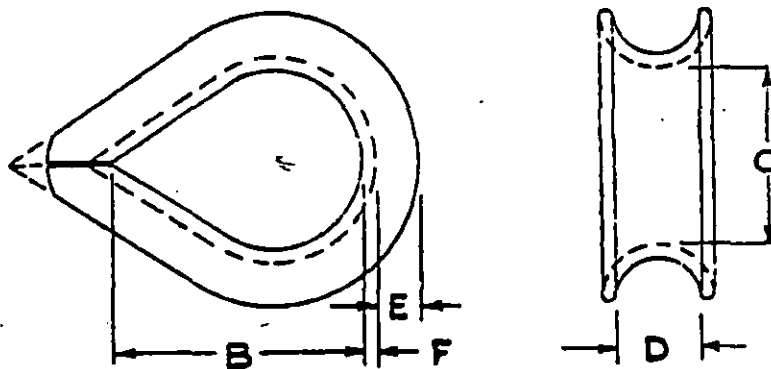


FIGURE 2. Type II, split oval, light fiber and wire-rope thimbles.

TABLE II. Dimensions, type II thimbles

| Thimble size<br>(nominal rope<br>diameter) | B,<br>minimum | C,<br>minimum | D, <sup>1/</sup><br>minimum | E,<br>minimum | F,<br>minimum | Approximate<br>weight<br>per 100 | Circumference<br>of fiber and<br>wire rope |
|--|---------------|---------------|-----------------------------|---------------|---------------|----------------------------------|--|
| Inches                                     | Inches        | Inches        | Inches                      | Inches        | Inch          | Pounds                           | Inches                                     |
| 1/8.....                                   | 1-1/4         | 11/16         | 5/32                        | 1/8           | 3/64          | 3.25                             |  |
| 3/16.....                                  | 1-1/4         | 11/16         | 7/32                        | 1/8           | 3/64          | 3.25                             |  |
| 1/4.....                                   | 1-5/16        | 11/16         | 9/32                        | 1/8           | 3/64          | 3.25                             | 3/4  |
| 5/16.....                                  | 1-1/2         | 13/16         | 11/32                       | 1/8           | 3/64          | 4.10                             |  |
| 3/8.....                                   | 1-9/16        | 15/16         | 13/32                       | 3/16          | 1/16          | 7.40                             | 1 - 1-1/8                                  |
| 1/2.....                                   | 1-7/8         | 1-1/8         | 17/32                       | 3/16          | 1/16          | 13.75                            | 1-1/2 - 1-3/4                              |
| 5/8.....                                   | 2-1/4         | 1-3/8         | 21/32                       | 1/4           | 3/32          | 34.0                             | 2  |
| 3/4.....                                   | 2-1/2         | 1-1/2         | 25/32                       | 5/16          | 3/32          | 50.6                             | 2-1/4                                      |
| 7/8.....                                   | 3             | 1-7/8         | 15/16                       | 3/8           | 1/8           | 90.0                             | 2-1/2 - 2-3/4                              |
| 1.....                                     | 3-5/16        | 2-1/8         | 1-1/16                      | 13/32         | 1/8           | 105.0                            | 3  |
| 1-1/8.....                                 | 3-5/8         | 2-3/8         | 1-3/16                      | 1/2           | 1/8           | 190.0                            | 3-1/4 - 3-1/2                              |
| 1-1/4.....                                 | 4             | 2-5/8         | 1-5/16                      | 1/2           | 5/32          | 190.0                            | 3-3/4                                      |
| 1-3/8.....                                 | 4-5/16        | 2-3/4         | 1-7/16                      | 23/32         | 3/16          |                                  | 4  |
| 1-1/2.....                                 | 4-5/8         | 2-3/4         | 1-9/16                      | 5/8           | 3/16          | 340.0                            | 4-1/2                                      |
| 1-5/8.....                                 | 5             | 3-5/16        | 1-3/4                       | 13/16         | 7/32          |                                  | 5  |
| 1-3/4.....                                 | 5-5/16        | 3-1/2         | 1-7/8                       | 27/32         | 1/4           | 594.0                            | 5  |
| 1-7/8.....                                 | 5-5/8         | 3-3/4         | 2-1/8                       | 29/32         | 1/4           |                                  | 5-1/2                                      |
| 2.....                                     | 6             | 3-3/4         | 2-3/32                      | 25/32         | 1/4           | 594.0                            | 6  |
| 2-1/4.....                                 | 6-5/8         | 4-1/2         | 2-3/8                       | 1             | 3/8           |                                  | 7  |
| 2-5/8.....                                 | 7-5/8         | 5-1/8         | 2-3/4                       | 1-3/16        | 7/16          |                                  | 8  |
| 3.....                                     | 8-5/8         | 5-3/16        | 3-1/8                       | 1-3/8         | 1/2           |                                  | 9  |
| 3-1/4.....                                 | 9-5/16        | 6-5/16        | 3-3/8                       | 1-7/16        | 9/16          |                                  | 10   |

<sup>1/</sup>Tolerance -- plus 1/82 inch up to and including 2/4-inch rope size and plus 1/16 inch above 2/4-inch rope size.

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3.3.3 Type III. Heavy-wire rope shall be of the split oval construction, semicircular at the closed ends with the sides tapering together at the free ends. The free ends

shall have a rounded shape. Heavy wire rope thimbles shall conform to the design shown in figure 3 and to the dimensions shown in table III.

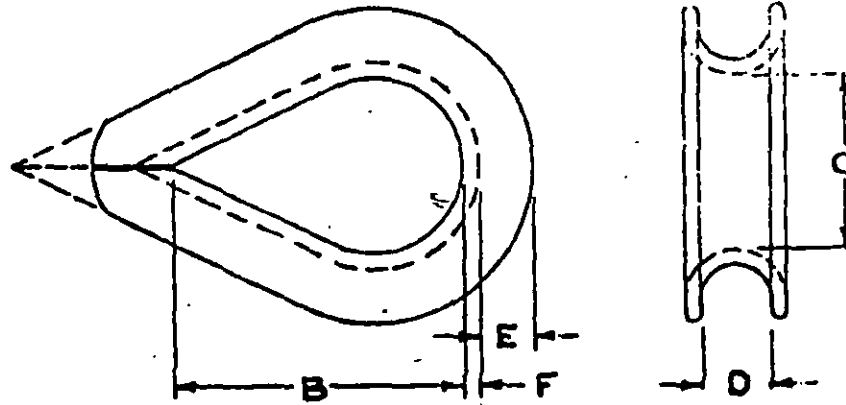


FIGURE 3. Type III, split oval heavy wire-rope thimbles.

TABLE III. Dimensions, type III thimbles

| Thimble size<br>(nominal wire-rope diameter) | B,<br>minimum | C,<br>minimum | D,<br>minimum | D,<br>maximum | E,<br>minimum | F,<br>minimum | Approximate weight per 100 |
|--|---------------|---------------|---------------|---------------|---------------|---------------|----------------------------|
| 1/4  | 1-5/8         | 3/4           | 9/32          | 5/16          | 3/16          | 1/16          | 7.6                        |
| 5/16   | 1-7/8         | 1             | 11/32         | 3/8           | 9/32          | 5/64          | 14                         |
| 3/8  | 2-1/8         | 1-1/8         | 13/32         | 3/16          | 17/64         | 7/64          | 25                         |
| 7/16   | 2-1/4         | 1-1/4         | 15/32         | 1/2           | 5/16          | 1/8           | 36                         |
| 1/2  | 2-5/8         | 1-1/2         | 17/32         | 5/8           | 3/8           | 9/64          | 51                         |
| 9/16   | 2-3/4         | 1-1/2         | 19/32         | 5/8           | 3/8           | 9/64          | 61                         |
| 5/8  | 3-1/4         | 1-3/4         | 21/32         | 11/16         | 19/32         | 5/32          | 75                         |
| 3/4  | 3-3/4         | 2             | 23/32         | 13/16         | 1/2           | 7/32          | 147                        |
| 7/8  | 4-1/4         | 2-1/4         | 15/16         | 1             | 9/16          | 7/32          | 186                        |
| 1  | 4-1/2         | 2-1/2         | 1-1/16        | 1-5/32        | 25/32         | 1/4           | 300                        |
| 1-1/8  | 5             | 2-7/8         | 1-3/16        | 1-3/8         | 13/16         | 1/4           | 410                        |
| 1-1/4  | 5-1/8         | 2-7/8         | 1-5/16        | 1-13/32       | 13/16         | 1/4           | 410                        |
| 1-3/8  | 6-1/4         | 3-1/2         | 1-7/16        | 1-5/8         | 1             | 1/2           | 1200                       |
| 1-1/2  | 6-1/4         | 3-1/2         | 1-9/16        | 1-11/16       | 1             | 1/2           | 1200                       |
| 1-5/8  | 8             | 4             | 1-23/32       | 1-13/16       | 1-1/8         | 1/2           | 1625                       |
| 1-3/4  | 9             | 4-1/2         | 1-27/32       | 1-15/16       | 1-1/4         | 1/2           | 1800                       |
| 1-7/8  | 10            | 5             | 1-31/32       | 2-3/16        | 1-5/16        | 1/2           | 2600                       |
| 2  | 10-15/16      | 6             | 2-3/32        | 2-3/16        | 1-1/4         | 1/2           | 2600                       |

**3.4 Workmanship.** The thimbles shall be free from sharp edges, seams, pipes, flaws, cracks, fins, porosity, hard spots, excessive nonmetallic inclusion and segregations. The thimbles shall also be free from all other defects of material and workmanship which may affect their strength and serviceability or that of the rope used therewith.

**4. QUALITY ASSURANCE PROVISIONS**

**4.1 Responsibility for inspection.** Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own facilities or any commercial laboratory acceptable to 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 that supplies and services conform to prescribed requirements.

**4.2 Inspection.** Sampling and inspection shall be performed in accordance with MIL-STD-105, except where otherwise indicated. All thimbles of the same type and size presented for delivery at one time shall be considered a lot.

**4.2.1 Examination of the end item for visual and dimensional defects.** The defects listed in table IV shall be counted regardless of their proximity to each other, except where two or more defects represent a single local condition, in which case only the more serious defect shall be counted. The unit of product for this examination shall be one thimble. The lot size for this examination shall be expressed in units of thimbles each. The inspection level shall be II, and the acceptable quality level (AQL) shall be 2.5 percent defective.

**TABLE IV. Examination for visual and dimensional defects**

| Examine                    | Defects  |
|----------------------------|--|
| Appearance and workmanship | Evidence of zinc coating flaking off or separating from base metal.<br>Surface not free from burrs, sharp edges, seams, cracks and hard spots. |

| Examine                              | Defect   |
|--------------------------------------|--|
| Appearance and workmanship (conf'd.) | Presence of uncoated spots, black spots, or acid spots.<br>Presence of paint or other type coating to disguise repairs or other defects.                                       |
| Weight                               | Type I less than specified minimum weight.<br>Types II and III, 10 percent less than specified approximate weights.  |
| Dimensions                           | Less than the minimum specified inside and outside diameters for type I.<br>Less than the minimum specified inside diameters and other listed dimensions for types II and III. |

**4.2.2 Examination of preparation for delivery requirements.** An examination shall be made to determine that the packaging, packing, and marking requirements of section 5 are complied with. Defects shall be scored in accordance with table V. The sample shall be one shipping container fully prepared for delivery with the exception that it need not be sealed. Defects of closure listed below shall be examined on shipping containers fully prepared for delivery. The lot size shall be the number of containers in the end item inspection lot. The inspection level shall be S-2 and the AQL shall be 4.0 defects per hundred units.

**TABLE V. Classification of preparation for delivery defects**

| Examine                         | Defects  |
|---------------------------------|--|
| Marking (exterior and interior) | Omitted, incorrect, illegible, of improper size, location, sequence, or method of application.   |
| Materials                       | Any component missing.   |
| Workmanship                     | Inadequate application of components such as incomplete closure of case liners, container flaps, loose strapping, inadequate stapling.<br>Bulging or distortion of containers. |
| Packaging                       | Not as specified.  |
| Packing                         | Not as specified.  |
| Weight                          | Gross weight exceeds maximum allowed.  |
| Contents                        | More than one size or one type packaged or packed together.  |

## 5. PREPARATION FOR DELIVERY

5.1 Packaging. Packaging shall be level A or C, as specified (see 6.2).

5.1.1 *Level A (thimbles less than 5 pounds each)*. Thimbles, of one size and one type only and weighing less than 5 pounds each, shall be packaged in the most compact manner in a fiberboard box conforming to type CF or SF, class domestic, grade 200 of PPP-B-636. The box shall be closed and reinforced in accordance with the box specification. The gross weight of the boxes shall not exceed the limitations of the box specification.

5.1.2 *Thimbles 5 pounds or more each*. Thimbles, of one size and one type only, weighing 5 pounds or more each shall require no packaging but shall be bulk-packed in containers specified in 5.2.

5.1.3 *Level C*. The packaging of thimbles shall be sufficient to afford adequate protection against physical damage during shipment from the supply source to the first receiving activity for immediate use. This level may conform to the supplier's commercial practice when such meets the requirements of this level.

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

5.2.1 *Level A*. Thimbles, packaged as specified in 5.1.1 and 5.1.3, as well as those referenced in 5.1.2, shall be packed in overseas type, nailed wood, wire-bound, or wood-cleated plywood boxes conforming to PPP-B-640 (class 2); PPP-B-621; PPP-B-585, class 3 use; or PPP-B-601, respectively, at the option of the contractor. Gross weight of shipping containers shall not exceed 200 pounds for bulk packed thimbles. Wood or wood-cleated plywood boxes shall be provided with waterproof liners and sealed in accordance with the appendix thereto. Case liners are not applicable to thimbles that are bulk packed.

5.2.2 *Level B*. Thimbles, packaged as specified in 5.1.1 and 5.1.3, as well as those referenced in 5.1.2, shall be packed in domestic type nailed wood, wire-bound, or wood-cleated plywood boxes conforming to PPP-B-640, class 1; PPP-B-621; PPP-B-585, class 1 or 2 use; or PPP-B-601, at the option of the contractor. Gross weight of shipping containers shall not exceed 200 pounds for bulk-packed thimbles.

5.2.3 *Level C*. Thimbles shall be packed in containers of the type, size, and kind commonly used for the purpose and in a manner that will insure acceptance by common carrier and safe delivery at destination. Shipping containers shall comply with the rules or regulations applicable to the mode of transportation.

## 5.3 Marking.

5.3.1 *Civil agencies*. In addition to markings required by the contract or order, shipments shall be marked in accordance with Fed. Std. No. 123.

5.3.2 *Military agencies*. In addition to markings required by the contract or order, shipments shall be marked in accordance with MIL-STD-129.

## 6. NOTES

6.1 *Intended use*. Type I thimbles are intended for use with fiber rope only. Type II thimbles, light, are intended for use where the full tension of the rope is not developed in normal use and for fiber rope. Type III thimbles, heavy, are intended for use with high-grade plow-steel wire rope where heavy commercial thimbles of the weight and specified dimensions are considered satisfactory.

6.2 *Ordering data*. Purchasers should select the preferred options permitted herein and include the following information in procurement documents:

- (a) Title, number, and date of this specification.

- (b) Type and size of thimble (order by nominal size — circumference for fiber rope and diameter for wire rope).
- (c) Selection of the applicable levels of packaging and packing required (see 5.1 and 5.2):

*User interest:*

Army—MU, GL  
Navy—MC, YD

*Preparing activity:*

Navy—SH

**MILITARY CUSTODIANS:**

Army—WC  
Navy—SH  
Air Force—69

*Review interest:*

Army—MO, WC, EL  
Navy—SH  
Air Force—69

Review/user information is current as of the date of this document. For future coordination of changes to this document, draft circulation should be based on the information in the current Federal Supply Classification Listing of DOD Standardization Documents.

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**NOTE:** This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

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DEPARTMENT OF THE NAVY

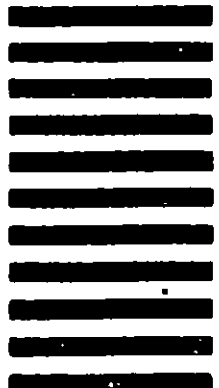


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# STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER

2. DOCUMENT TITLE

3a. NAME OF SUBMITTING ORGANIZATION

4. TYPE OF ORGANIZATION (Mark one)

VENDOR

USER

MANUFACTURER

OTHER (Specify): \_\_\_\_\_

3b. ADDRESS (Street, City, State, ZIP Code)

## B. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording:

c. Reason/Rationale for Recommendation:

## C. REMARKS

7a. NAME OF SUBMITTER (Last, First, MI) - Optional

7b. WORK TELEPHONE NUMBER (Include Area Code) - Optional

8a. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional

8b. DATE OF SUBMISSION (YYMMDD)

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