MIL-C-3383
AMENDMENT 3
8 August 1962
SUPERSEDING
AMENDMENT 2
17 August 1953

MILITARY SPECIFICATION

CUPS, BULLET JACKET, GILDING METAL (FOR SMALL ARMS AMMUNITION)

This amendment forms a part of Military Specification MIL-C-3383, 25 January 1951, and has been approved by the Ordnance Corps, and is mandatory for use by that activity.

Page 1, paragraph 1.2, Classification, Sizes: Add "For 7.62MM bullet jackets."

Page 1, section 2: Delete and substitute:

"2. APPLICABLE DOCUMENTS

2.1 The following documents of the issue in effect on the date of invitation for bids, form a part of this specification to the extent specified herein.

SPECIFICATION

Military

JAN-G-383	Gilding Metal (90/10 Brass); Sheet and Strip

STANDARDS

Federal

Federal Test Method Std. No. 151 - Metals; Test Methods

Military

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

PUBLICATIONS

Ordnance Corps

ORD-SIP-S301	Visual Inspection Standards for Cups used in Small Army Ammunition Manufacture

FSC 1305

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

Page 2, table 1:

Delete" Weight:	10 percent of drawing tolerance	:10 percent: :of drawing: :tolerance:

Page 2, paragraph 3.2.2, line 1: Delete "lot quality standard" and substitute "acceptable quality level."

Page 2, paragraph 3.3.2, line 1: Delete "lot quality standard" and substitute "acceptable quality level."

Page 2, paragraph 3.4.2, line 1: Delete "lot quality standard" and substitute "acceptable quality level."

Page 3, paragraph 4.2, line 2: Delete "Specification QQ-M-151" and substitute "Federal Test Method Std. No. 151."

Page 3, paragraph 4.3: Delete and substitute:

"4.3 Gaging and visual inspection.- The size of the inspection sample shall be in accordance with inspection level II of Standard MIL-STD-105. The sample shall be selected in approximately equal quantities from one-fourth of the containers holding the cups in the lot, or 10 containers, whichever is greater. Each cup of the sample shall be gaged and inspected visually for compliance with 3.2 and 3.3."

Page 3, paragraph 4.4.2, line 9: Insert a comma after "made."

Page 4, paragraph 4.6.3 lines 2 and 3: Delete "lot quality standards" and substitute "acceptable quality level."

Page 6, paragraph 5.3.1, last line: Delete "Palletized boxes" and substitute "Pallet (skid) box."

Page 6, paragraph 5.3.2, line 1: Delete "Palletized boxes" and substitute "Pallet (skid) box."

Page 6, paragraph 5.4, lines 6 and 7: Delete "Specification 100-2" and substitute "Standard MIL-STD-129."

Custodian:

Army - Ord

Preparing Activity:

Army - Ord

25 C.P. No. 1

MIL-C-3383
25 JANUARY 1951
SUPERSEDING
Army 57-171-3A
21 May 1943

MILITARY SPECIFICATION

CUPS, BULLET JACKET, GILDING METAL (FOR SMALL ARMS AMMUNITION)

This specification was approved by the Departments of the Army, the Navy, and the Air Force for use of procurement services of the respective Departments.

1. SCOPE

1.1 Scope.—This specification covers gilding metal cups for use in the manufacture of bullet jackets for small arms ammunition.

1.2 Classification.—Cups shall be furnished in the following sizes and conditions, as specified:

Sizes

For caliber .30 bullet jackets
For caliber .30 carbine bullet jackets
For caliber .45 bullet jackets
For caliber .50 bullet jackets
For caliber .60 bullet jackets
For 7.62 mm bullet jacket

Conditions

Annealed
Unannealed

2. APPLICABLE SPECIFICATIONS AND OTHER PUBLICATIONS

2.1 Specifications.—The following specifications, of the issue in effect on date of invitation for bids, form a part of this specification:

FEDERAL SPECIFICATION

QQ-M-151 —Metals; General Specification for Inspection of.

MILITARY SPECIFICATION

JAN-G-383 —Gilding Metal (90/10 Brass); Sheet and Strip.

U. S. ARMY SPECIFICATION

100-2 —Standard Specification for Marking Shipments by Contractors.

(Copies of specifications should be obtained from the procuring agency or as directed by that agency. Both the title and identifying number or symbol should be stipulated when requesting copies.)

2.2 Other publications. — The following publications, of the issue in effect on date of invitation for bids, form a part of this specification:

MILITARY STANDARD

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

U. S. ARMY ORDNANCE CORPS PUBLICATION

ORD-SIP-S301—Visual Inspection Standards for Cups Used in Small Arms Ammunition Manufacture.

(Copies of publications should be obtained from the procuring agency or as directed by that agency. Both the title and identifying number or symbol should be stipulated when requesting copies.)

3. REQUIREMENTS

3.1 Material.—Gilding metal from which the cups are made shall conform to Specification JAN-G-383.

Superseded by MIL-C-

3.2 Dimensions. — The dimensions of the cups shall conform to the applicable drawing.

3.2.1 *Classification of dimensional defects.* — Dimensions out of drawing limits by amounts equal to or less than those shown in table I, shall be minor defects. Dimensions out of drawing limits by amounts greater than those listed in table I shall be major defects. Where no dimensional deviation limit is listed in table I, any departure from drawing requirements shall be a major defect.

TABLE I.—*Dimensional deviation limits*

Dimensions	Over maximum drawing limit	Under minimum drawing limit
	Inch	*Inch*
Outside diameter	0.0005	0.0010
Base thickness[1]	.0005	.0005
Wall thickness	.0005	.0010
Wall thickness variation	.0000	---
Wall height variation[2]	.0100	---
Weight	10 percent of drawing tolerance	10 percent of drawing tolerance

[1] Within a lot of cups, base thickness may be either over the maximum limit or under the minimum limit of the applicable drawing by amounts shown in table I, but *not both.*

[2] Wall height variation is classified as a minor defect when it is out of the drawing limit by not more than 0.010 inch, provided such variation is due to a "crooked" cup. If wall height variation exceeds the drawing limit by any amount because of "scallops", the defect is classified as major.

3.2.2 The lot quality standard of the cups with respect to dimensional defects shall be as follows:

Major defects	0.25 percent
Minor defects	2.50 percent

3.3 Visual defects.

3.3.1 *Classification of visual defects.*— Visual defects shall be major or minor as shown in table II.

TABLE II.—*Classification of visual defects*[1]

Major defects	Minor defects
Scaly metal	Scratches
Improperly formed or mutilated cups	Oil, grease, dirt
Scrap	Dents or bent edges
Laminations	Oxidation
Wire edge[2]	Wire edge[2]

[1] Defects listed in table II, except wire edges, are illustrated in table III of Standard ORD–SIP–S301.

[2] Wire edge on the inner or outer wall of the cup shall be classified as major, minor, or permissible at the discretion of the contracting officer.

3.3.2 The lot quality standard of the cups with respect to visual defects shall be as follows:

Major defects	0.25 percent
Minor defects	2.50 percent

3.4 Grain size. — Unless otherwise specified, the grain size of the cups shall conform to table III.

TABLE III.—*Grain size limits*

Condition	Grain size	
	Base	Sidewall
	mm.	mm.
Annealed	—	0.025 — 0.050
Unannealed	0.040 max.	—

3.4.1 *Classification of grain size defects.*— Grain size defects shall be major or minor as follows:

Minor defect—Grain size out of limits shown in table III by .005 mm. or less.

Major defect—Grain size out of limits shown in table III by more than .005 mm.

3.4.2 The lot quality standard of the cups

with respect to grain size defects shall be as follows:

Major defects	0.00 percent
Minor defects	4.00 percent

3.5 Cleaning. — Annealed cups shall be pickled, washed, and dried immediately after annealing and shall be suitable, when delivered, for drawing without further cleaning. Unannealed cups shall be washed and dried.

3.6 Workability.—The workability of the cups shall be such that they will process satisfactorily into bullet jackets.

3.7 Workmanship.—The cups shall be uniform in quality, shall be free of injurious defects except as provided in 3.2 and 3.3, and shall be suitable for the purpose intended.

4. SAMPLING, INSPECTION, AND TEST PROCEDURES

4.1 Lot.—Unless otherwise specified, a lot shall consist of cups of the same size and condition submitted for inspection at one time, but shall not exceed 60,000 pounds of cups.

4.2 Chemical analysis. — Sampling and analysis shall be in accordance with Specification QQ-M-151.

4.2.1 The sample for chemical analysis shall consist of 2 ounces of clean, mixed chips taken from at least 15 cups.

4.2.2 The tool used to obtain the sample shall be thoroughly cleaned. No lubricant shall be used in the operation, and the chips shall be carefully treated with a magnet to remove any particles of iron introduced in taking the sample.

4.2.3 At the option of the contracting officer, analysis for determining elements other than copper or zinc may be made by the spectographic method, provided that in case of dispute, analysis by standard gravimetric or volumetric methods shall be the basis for acceptance.

4.2.4 Analysis shall regularly be made only for copper, lead, and iron. If, however, the presence of elements other than copper, lead, iron, or zinc is suspected or indicated in the course of routine analysis, further analysis shall be made to determine that the total of these other elements is not in excess of the limits specified.

4.3 Gaging and visual inspection. — The size of the inspection sample shall be in accordance with inspection level III of Standard MIL-STD-105. The sample shall be selected in approximately equal quantities from one-fourth of the containers holding the cups in the lot, or ten containers, whichever is greater. Each cup of the sample shall be gaged and inspected visually for compliance with 3.2 and 3.3.

4.4 Grain size tests.

4.4.1 The quantity of cups used for grain size determination shall be as specified in Standard MIL-STD-105, Double Sampling Plan, Sample Size Code Letter G, and shall be taken from the sample used for visual inspection and gaging. Each cup selected shall be sectioned along a plane passing through the axis of the cup.

4.4.2 Measurements of grain size of annealed cups shall be made in a zone approximately midway of the length of the sidewall and in the location with respect to the wall thickness of the cup as shown in figure 1. Grain size measurements of unannealed cups shall be made in a zone on the outside of the cup approximately at the center of the base. At least three readings shall be made, averaged, and recorded for each grain size determination.

4.4.3 Grain size shall be determined by standard methods using a magnification of 75X and a projected image of 79.8 mm. diameter. Direct comparison shall be made with standard photomicrographs.

4.4.4 In case of dispute, the diameter of the average grain shall be determined as de-

scribed below. In counting individual grains, the original crystal, including the twinned layers, shall constitute one grain.

4.4.4.1 A circle 79.8 mm. in diameter, or a rectangle of the same area, (5,000 square mm.) shall be drawn on the rough side of a ground-glass screen, with the center of the circle or rectangle near the center of the screen. This ground glass shall be mounted in a frame which fits a metallographic camera, with the smooth side of the glass outside. When the image of the specimen for grain-size determination is focused on the screen, the circle or rectangle, plainly visible, shall be well within the image.

4.4.4.2 When the image is properly focused, the grains intersected by the circumference of the circle or perimeter of the rectangle shall be checked and counted. Since the check marks must be made on the smooth side of the glass, a soft red pencil, such as used in laboratories for marking beakers and flasks, will be found satisfactory. The marks used to indicate the boundary grains are usually short, straight lines intersecting the circumference of the circle or perimeter of the rectangle and perpendicular to it. The completely included grains shall be next checked and counted, after which the red marks may be erased from the glass with a dry cloth. The specimen may then be moved and additional measurements made as desired.

4.4.4.3 One-half the number of grains intersected by the circumference of the circle, or perimeter of the rectangle, added to the number of completely included grains, gives the number of equivalent whole grains within the circle or rectangle.

4.4.4.4 The following formulas shall be used in computing the grain size:

$$x = \frac{w}{2} + z$$

$$f = \frac{m^2}{5{,}000}$$

$$n = f\ x$$

$$d = \frac{1}{\sqrt{n}}$$

where: x = equivalent number of whole grains in 5,000 square millimeters,

w = number of boundary grains,

z = number of completely included grains,

f = multiplier to obtain number of grains per square millimeters,

m = magnification used,

n = number of grains per square millimeter,

d = diameter of average grain in millimeters.

4.5 Workability test.

4.5.1 A random sample of at least 5,000 cups from each lot shall be subjected to a workability test which shall comprise all the operations in the manufacture of the bullet jacket for which the cup is intended. The workability test shall be made in the plant where the material is to be processed, using tools, drawing compounds, etc., in accordance with usual manufacturing practice.

4.5.2 The workability test may be waived by the contracting officer, if, in his opinion, previous experience with the contractor's cups indicates the test to be unnecessary.

4.6 Retests.

4.6.1 Retests for tests other than workability test and grain size test may be allowed only upon written request of the contractor, approved by the contracting officer, and shall be in accordance with 4.6.3.

4.6.2 No retest shall be allowed on a lot if it fails in the workability test or grain size test.

4.6.3 A lot of cups which has been rejected because of the failure to conform to the lot quality standards specified for visual and di-

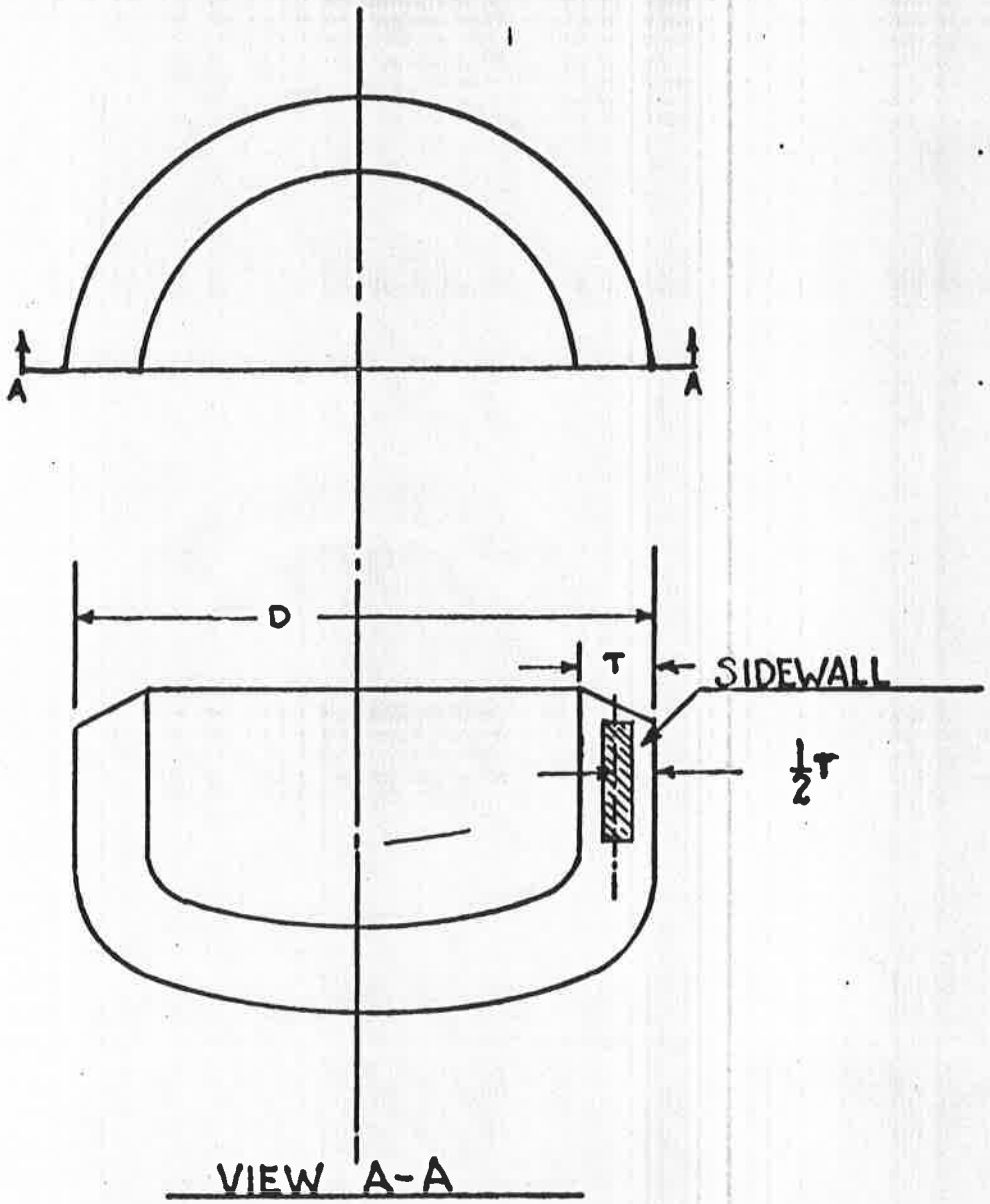

FIGURE 1.—*Zone to be examined for grain size of annealed caps.*

mensional defects may be resubmitted. However, prior to such resubmission, the contractor shall remove from the lot all defective cups.

5. PREPARATION FOR DELIVERY

5.1 **Preservation.**—All cups shall be protected against corrosion in transit.

5.2 **Segregation of lots.**—All cups shall be properly segregated by lots when prepared for shipment.

5.3 **Packing.**

5.3.1 The cups shall be packed in wooden barrels, wooden drums, or wooden boxes approved by the contracting officer. Only one type of container shall be used for any one lot of cups. All wooden containers shall be paper lined. Packing in sawdust will not be permitted. The maximum permissible weight for each container, including contained cups, shall be as follows:

Wooden boxes.—275 pounds

Wooden drums.—650 pounds

Wooden barrels.—1,000 pounds

Palletized boxes.—3,000 pounds.

5.3.2 Palletized boxes may be used only when specifically authorized by the contracting officer. The weight of the box, including contained cups, shall be plainly and conspicuously marked on the box.

5.3.3 Packing shall be done in such a manner as to insure acceptance by common or other carriers for safe transportation, at lowest rate, to the point of delivery.

5.4 **Marking.** — Each container shall be marked with the name of the material, size and condition of cups, lot number, name of contractor, and the number of the contract or order. In addition, shipments shall be marked in accordance with Specification 100-2.

6. NOTES

6.1 **Ordering data.** — Purchasers should specify the title, number, and date of this specification, the size and condition of cups, and applicable drawings, and should exercise any desired options offered herein. (See 3.4 and 4.1.)

Custodian:
Army—Ordnance Corps.

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