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MILITARY SPECIFICATION

BUCKLES; AND CLIPS, END, STRAP (FOR BELT, TROUSERS)

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

1. SCOPE

1.1 Scope. This document covers buckles and end clips (see 6.1).

1.2 Classification. Buckles and clips shall be of the following types, classes, sub-classes, and sizes as specified (see 6.2):

Type I - Buckle (closed front)

Sizes:

- 1-1/8 inch

- 1-5/16 inch

Class 1 - Yellow brass

Sub-class A - Lacquer coated

Sub-class B - Chromium plated

Class 2 - Nickel silver

Type II - Buckle (open front)

Size - 1-1/4 inch

Class 1 - Yellow brass

Class 2 - Steel

Size - 1-5/16 inch

Class 3 - Red brass

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 8315

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Type III - Clip

Sizes:

- 1 inch
- 1-1/4 inch

Class 1 - Yellow brass

Sub-class A - Mirror finish

Sub-class B - Black enamel finish

Class 2 - Nickel silver

Size - 1-1/4 inch

Class 3 - Red brass

Class 4 - Steel

Sub-class A - Brass plated

Sub-class B - Black enamel finish

2. APPLICABLE DOCUMENTS

2.1 Government documents.

- * 2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks 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-B-613 | - Brass, Leaded and Nonleaded: Flat Products (Plate, Bar, Sheet, and Strip) |
| QQ-C-320 | - Chromium Plating (Electrodeposited) |
| QQ-N-290 | - Nickel Plating (Electrodeposited) |
| QQ-W-321 | - Wire, Copper Alloy |
| TT-E-529 | - Enamel, Alkyd, Semigloss |
| PPP-B-26 | - Bag, Plastic (General Purpose) |
| PPP-B-636 | - Boxes, Shipping, Fiberboard |
| PPP-B-676 | - Boxes, Setup |
| PPP-T-45 | - Tape, Gummed, Paper, Reinforced and Plain, For Sealing and Securing |

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- | | |
|-------------|--|
| MIL-F-495 | - Finish, Chemical, Black, For Copper Alloys |
| MIL-B-833 | - Belt, Trousers, Cotton Webbing, with Clip |
| MIL-L-35078 | - Loads, Unit: Preparation of Semiperishable Subsistence Items; Clothing, Personal Equipment and Equipage; General Specification For |

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STANDARDS

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- MIL-STD-105 - Sampling Procedures and Tables for Inspection
by Attributes
- MIL-STD-129 - Marking for Shipment and Storage
- MIL-STD-147 - Palletized Unit Loads

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

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this specification to the extent specified herein. Unless otherwise specified, the issues shall be those in effect on the date of the solicitation.

DRAWINGS

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

- 2-4-57 - Buckles; and Clips, End, Strap (For Belt, Trousers);
Type I, (Closed Front) Buckle, Sizes 1-1/8" and
1-5/16", Class 1 and 2
- 2-4-58 - Buckles; and Clips, End, Strap (For Belt, Trousers);
Type III, Clip, End, Strap, Size 1" and 1-1/4",
Class 1, 2, 3, and 4
- 2-4-63 - Buckles; and Clips, End, Strap (For Belt, Trousers);
Die Cut Card for Mounting End Clip
- 2-4-64 - Buckles; and Clips, End, Strap (For Belt, Trousers);
Type II, (Open Front) Buckle, 1-5/16 Inch Size,
Class 3
- 4-1-436 - Buckles; and Clips, End, Strap (For Belt, Trousers);
Type II, (Open Front) Buckle, 1-1/4 Inch Size,
Class 1 and 2

(Copies of 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 issues of the nongovernment documents which are current on the date of the solicitation.

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AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- A 109 - Steel, Carbon, Cold-Rolled Strip
- A 366 - Steel, Carbon, Cold-Rolled Sheet, Commercial Quality
- B 122 - Copper-Nickel-Tin Alloy, Copper-Nickel-Zinc Alloy (Nickel Silver) and Copper-Nickel Alloy Plate, Sheet, Strip, and Rolled Bar
- B 633 - Electrodeposited Coatings of Zinc on Iron and Steel
- D 3951 - Standard Practice for Commercial Packaging
- E 18 - Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials

(Copies should be obtained from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103-1187.)

(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.)

- * 2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, 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 First article. When specified in the contract or purchase order, a sample shall be subjected to first article inspection (see 4.3, 6.2, and 6.3).

3.2 Materials. Materials shall conform to applicable documents and requirements specified herein (see 6.6).

3.2.1 Copper base alloys.

3.2.1.1 Brass sheet or strip. Sheet or strip shall conform to copper alloy Nos. 230, 260, or 268 of QQ-B-613. Temper shall be as shown on drawings, or as specified herein.

3.2.1.2 Nickel silver. Nickel silver shall conform to UNS No. 75200 of ASTM B 122.

3.2.1.3 Wire, copper. Copper wire shall conform to alloy Nos. 260 or 270, 1/8 hard temper of QQ-W-321.

- * 3.2.2 Steel, sheet and strip. Steel shall conform to cold rolled, chemical composition within the range of steel numbers 1009-1020 of ASTM A 109 or A 366. Temper shall be as shown on drawings and as specified herein.

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3.2.3 Lacquer. The lacquer shall be clear, synthetic and colorless, except as otherwise specified herein (see 3.4.3.4.1).

* 3.2.4 Enamel. Enamel shall be black conforming to TT-E-529.

* 3.3 Construction and performance. Buckles and clips shall be constructed in accordance with the design, details, and dimensions shown on the applicable drawings and as specified herein. The buckles and clips shall be free from digs or gouges, burrs, slivers, sharp edges, dents, or tool marks. The buckle clamps, rollers, and tongues shall be tested as specified in 4.4.5 and when a pull of 35 pounds is applied, shall hold fast with no more than 1/4 inch of belt slippage and no permanent deformation.

3.3.1 Type I buckles.

3.3.1.1 Class 1. All components of the class 1 buckles except roller shall be made from copper alloy Nos. 260 or 268 specified in 3.2.1.1, 1/4 hard temper. The roller shall be made from copper wire specified in 3.2.1.3.

* 3.3.1.2 Class 2. The front piece, back plate, clamp, and roller shall be made from nickel silver specified in 3.2.1.2. Wire for the roller shall be 1/8 hard temper.

3.3.2 Type II buckles.

3.3.2.1 Size 1-1/4 inch. The buckle shall be tested for function as specified in 4.4.5, with belt webbing as shown on Drawing 2-4-64. The webbing shall lie flat on top of tongue when tongue is snapped down in locked position.

3.3.2.1.1 Class 1. Class 1 buckles shall be made from copper alloy Nos. 260 or 268 specified in 3.2.1.1.

3.3.2.1.2 Class 2. Class 2 buckles shall be made from steel specified in 3.2.2.

3.3.2.2 Size, 1-5/16 inch, class 3. Class 3 buckle components shall be made from copper alloy No. 230, 1/4 hard temper brass specified in 3.2.1.1 except that 1/4 hard temper is not required for the buckle body and ratchet back. The buckle shall be tested for function as specified in 4.4.5, with belt webbing as shown on Drawing 2-4-64. The webbing shall lie flat on top of tongue when tongue is snapped down in locked position.

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3.3.3 Type III clips. Type III clips shall be formed with the smooth edge of the metal (see 6.5) on the outside of the clip. The size 1-1/4 inch clip when affixed to 1-1/4 inch wide belt webbing and tested as specified in 4.4.5 shall thread through a type I or II buckle, size 1-1/4 inch or 1-5/16 inch and of any class specified herein without binding or forcing. The size 1 inch clip when affixed to 1 inch wide belt webbing and tested as specified in 4.4.5 shall thread through a type I, 1-1/8 inch buckle of any class without binding or forcing.

3.3.3.1 Class 1. Class 1 clips shall be made from copper alloy No. 260 or 268, 1/4 hard temper brass specified in 3.2.1.1.

3.3.3.2 Class 2. Class 2 clips shall be made from nickel silver specified in 3.2.1.2, and shall have a hardness of 75 to 78.5 on the Rockwell 15T scale. Testing for hardness shall be as specified in 4.4.5.

3.3.3.3 Class 3. Class 3 clips shall be made from copper alloy No. 230 1/4 hard temper brass specified in 3.2.1.1.

3.3.3.4 Class 4. Class 4 clips shall be made from steel specified in 3.2.2, 1/2 hard temper.

* 3.4 Finish. Finish requirements for buckles and clips shall be in accordance with the samples furnished by the procuring activity. Prior to finishing, all buckles and clips shall be thoroughly cleaned in accordance with commercial practice and shall be free from corrosion, foreign matter, and discoloration. Use of prepolished brass is prohibited.

3.4.1 Type I buckles.

3.4.1.1 Class 1 sub-class A. The outside face and two edge surfaces of the front piece and the exposed surface of the roller of class 1, sub-class A buckles shall be given a mirror-like polished finish. The back plate and clamp shall be bright-dipped or ball-burnished finish. The completed buckle shall be lacquered with lacquer specified in 3.2.3, and as specified in 3.4.4.

3.4.1.2 Class 1, sub-class B. The outside face and two edge surfaces of the front piece and the exposed surface of the roller of class 1, sub-class B buckles shall be given a mirror-like polished finish. The back plate and clamp shall be bright-dipped or ball-burnished finish. The buckle shall be nickel-plated in accordance with class 1, grade G of QQ-N-290 followed by chrome plating in accordance with class 1, type I of QQ-C-320 except the thickness shall be 0.000015 inch minimum. The outside face and two edge surfaces of the front piece and the ends of the roller shall be polished to a uniform mirror-like finish.

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- * 3.4.1.3 Class 2. The outside face and two edge surfaces of the front and back piece and the exposed surfaces of the roller of class 2 buckles shall be given a satin finish in accordance with the satin finish sample furnished by the contracting activity (see 6.4). The scratch pattern shall be parallel to the long dimension edge of the buckle.

3.4.2 Type II, buckles.3.4.2.1 Size 1-1/4 inch.

3.4.2.1.1 Class 1. Class 1 buckles shall be given a black chemical finish conforming to MIL-F-495, except that the gloss shall be 40 maximum. The gloss shall be estimated visually against a black panel that has a gloss of 40.

- * 3.4.2.1.2 Class 2. Class 2 buckles shall be given a phosphate treated zinc plate conforming to type IV (with a thickness of 8 micrometers) of ASTM B 633, followed by bake enameling. The enamel shall be as specified in 3.2.4. The enamel coating shall level out to a uniform dry film thickness without orange peel, wrinkles, drops, streaks, peeling or flaking, specks, scratches, foreign matter, or areas of no film.

3.4.2.2 Size 1-5/16 inch.

3.4.2.2.1 Class 3. The tongue, ratchet back, and ratchet shall be bright-dipped or barrel-burnished. The face and edge surfaces of the body shall have a mirror-like polished finish or ball-burnished finish. The back of the body shall be buffed smooth.

3.4.3 Type III clips.3.4.3.1 Class 1.

3.4.3.1.1 Sub-class A (mirror finish). All outside surfaces shall be given a mirror-like polished finish and then lacquered with lacquer specified in 3.2.3 and as specified in 3.4.4. The inside surfaces of the clip may also be lacquered.

3.4.3.1.2 Sub-class B (black enamel finish). The entire clip shall be given a chemical dark oxide treatment in preparation for enameling. The final rinse stage shall be carefully conducted to remove alkaline residue and drying shall be thorough. The exterior surface and all edges shall be, and the interior may be, coated with enamel specified in 3.2.4, and baked. The finish shall be smooth, uniform and continuous, without orange peel, wrinkles, drops, streaks, peeling or flaking, specks, scratches, or foreign matter. When tested as specified in 4.4.5, the enamel shall withstand clinching of the end clip to the belt without flaking, chipping, or showing signs of cracks in the finish and without perceptible loss in adhesion to the point where the enamel can be removed by a thumbnail.

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3.4.3.2 Class 2. All outside surfaces of the class 2 clip shall be given a satin finish in accordance with the satin finish sample furnished by the contracting activity (see 6.4) with or without the lacquer coat specified in 3.2.3 and as specified in 3.4.4. The inside surface of the clip may also be lacquered. The scratch pattern shall be parallel to the short dimension edge of the clip.

3.4.3.3 Class 3. All outside surfaces of the class 3 clips shall be given a mirror-like polished finish.

3.4.3.4 Class 4.

3.4.3.4.1 Sub-class A (brass plated). All surfaces shall be completely covered with a commercial bright brass plating not less than 0.0002 inches thick when tested as specified in 4.4.2.1. The surfaces shall be coated with a colorless, baked epoxy lacquer.

* 3.4.3.4.2 Sub-class B (black enamel finish). All surfaces shall be given a phosphate treated zinc plate conforming to type IV (with a thickness of 8 micrometers) of ASTM B 633, followed by baked enameling. The enamel shall be as specified in 3.2.4. The enamel coating shall level out to a uniform dry film thickness without orange peel, wrinkles, drops, streaks or areas of no film. When tested as specified in 4.4.5, the baked-on enamel shall adhere without flaking, chipping, or showing signs of cracks in the finish.

3.4.4 Lacquering.

3.4.4.1 Type 1, class 1 buckle; type III clips, classes 1, 2 and 4, sub-class A. The dry lacquer film shall be continuous, level, adherent, free from lint or other foreign inclusion, and not blushed, cloudy, hazy or have a rainbow effect. When tested as specified in 4.4.5, there shall be no change in the lacquered surface except for slight overall yellowing and there shall not be more than three dark spots, each not exceeding 1/32 inch in the largest dimension.

3.5 Marking for identification. All buckles shall be marked for identification with the letters "U.S." of the size as shown on the applicable drawings and manufacturer's identification of such known character as to be identifiable. The marking shall be permanently affixed by stamping or etching on the back surface of the buckle's back plate, clamp, or ratchet as shown on applicable drawing. The identification marks shall be incorporated in such a manner that the surface opposite the markings shall show no signs of penetration or unevenness, or that distortion is not caused on any part of the buckle.

3.6 Workmanship. The buckles and clips shall conform to the quality of product established by this document and the occurrence of defects shall not exceed the applicable acceptable quality levels.

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* 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 this 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 requirement 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.

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

- a. First article inspection (see 4.3).
- b. Quality conformance inspection (see 4.4).

4.3 First article inspection. When a first article is required (see 6.2), it shall be examined for the defects specified in 4.4.3 and 4.4.4 and tested for the characteristics specified in table II. The presence of any defect or failure to pass any test shall be cause for rejection of the first article.

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

4.4.1 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.

4.4.2 In-process inspection. Examination shall be made at any point or during any phase of the manufacturing process to determine whether the required operations are accomplished as specified. When applicable, in-process inspection shall be conducted to assure that the phosphate treated zinc plating has been accomplished and conforms to ASTM B 633.

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4.4.2.1 Plating thickness test (class 4, sub-class A clip). Testing before lacquering shall be performed on brass-plated class 4, sub-class A clips to determine compliance with 3.4.3.4.1. The test method shall be a standard commercial thickness test. The lot size shall be expressed in units of unlacquered clips. The sample unit shall be one clip. The inspection level shall be S-1 and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 6.5.

4.4.3 End item visual examination. The end items shall be examined for the defects listed in table I. The lot size shall be expressed in units of completely finished buckles or clips, as applicable, of one type, class, sub-class, size, and finish. The sample unit shall be one buckle or clip, as applicable. The inspection level shall be II and the AQL, expressed in terms of defects per hundred units, shall be 4.0 for major defects and 10.0 for total (major and minor combined) defects.

TABLE I. End item visual defects

Examine	Defect	Classification	
		Major	Minor
Color and finish	Not finished or the type of finish is not as specified	101	
	Discoloration clearly noticeable ^{1/}	102	
	Any area of corrosion	103	
	Scratch pattern of satin-finished buckles and clips not in direction specified	104	
	Not lacquered (when required)	105	
	Black chemical, enamel, or lacquer finish is not adherent (e.g., blistered, peeling, or flaking)	106	
	Foreign matter embedded in finish of surfaces exposed to view when in use ^{1/}	107	
	Foreign matter embedded in finish, but not exposed to view when in use		201
	Coating is not level, uniform, and continuous (e.g., runs, orange peel, wrinkles, drops, or streaks) ^{1/}	108	
	Lacquer coating is blushed, cloudy, hazy, or has rainbow effect		202
	Finish is tacky to touch		203

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TABLE I. End item visual defects - Continued

Examine	Defect	Classification	
		Major	Minor
Color and finish - continued	Buff, drag, or mottled finish on surfaces exposed to view when in use 1/	109	
	Plating (when applicable) is broken, cut through, corroded, or erupted 1/	110	
	Back, clamp, roller of buckle, or inside of buckle or clip is not bright and clean when required		204
	Penetration of markings to opposite surface, unevenness, or distortion	111	
Design	Any characteristic not in accordance with the specified design	112	
Type, class and size	Not as specified or as shown on drawing	113	
Construction and workmanship	Component cracked, fractured, malformed, distorted, or bent	114	
	Dents, nicks, pores, abrasions, pits or scratches on surfaces exposed to view when in use 1/	115	
	Digs, gouges, burrs, slivers, sharp edges, or tool marks	116	
	Component missing	117	
	Operation omitted	118	
	Functioning component that is inoperative or will not operate as intended	119	
	Functioning component that requires abnormal force to operate but will function		205
	Edge not clean (e.g., sharp burr or fin)	120	
	Smooth edge of clip on outside	121	
	Prongs or teeth not sharply pointed where required	122	
	Any part misplaced, loose, or not in proper alignment	123	

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TABLE I. End item visual defects - Continued

Examine	Defect	Classification	
		Major	Minor
Marking	Missing, illegible, or incomplete		206

1/ Noticeable at a normal inspection distance of 3 feet; if noticeable at less than 3 feet, classify as minor.

4.4.4 End item dimensional examination. The end items shall be examined for compliance with dimensions specified with an asterisk on Drawings 2-4-57, 2-4-58, 2-4-63, 2-4-64, and 4-1-436. Any dimension that is not within the specified requirements shall be classified as a defect. The lot size shall be expressed in units of completely finished buckles or clips, as applicable, of one type, class, sub-class, size, and finish. The sample unit shall be one buckle or clip, as applicable. The inspection level shall be S-2 and the AQL, expressed in terms of defects per hundred units, shall be 4.0.

4.4.5 End item testing. Testing of the completely finished buckles and clips shall be performed in accordance with table II for the characteristics specified. The sample unit shall be one buckle or clip.

TABLE II. End item tests

Characteristic	Requirement reference	Test method	Number determinations per sample unit	Results reported as pass or fail	Inspection level	AQL
Pull test (all types and classes of buckles)	3.3	4.5.3	1	X	S-1	6.5
Nickel plate thickness (type I, class 2 buckle)	3.4.1.2	QQ-N-290	1	X	S-1	6.5

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TABLE II. End item tests - Continued

Characteristic	Requirement reference	Test method	Number determinations per sample unit	Results reported as pass or fail	Inspection level	AQL
Function (type II buckle)	3.3.2.1 and 3.3.2.2	4.5.2	1	X	S-1	6.5
Function (type III clips)	3.3.3	4.5.2	1	X	S-1	6.5
Hardness (type III, class 2 clip)	3.3.3.2	ASTM E 18	1	X	S-4	2.5
Adhesion of finish after clinching (type III, class 1 sub-class B clip)	3.4.3.1.2	4.5.5	1	X	S-1	6.5
Adhesion of enamel (type III, class 4, sub-class B clip)	3.4.3.4.2	4.5.4	1	X	S-1	6.5
Lacquer resistance to liver of sulphur solution (type I, class 1 buckle; type III clips, classes 1, 2 and 4, sub-class A)	3.4.4.1	4.5.1	1	X	S-1	6.5

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- * 4.4.6 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>
Marking (exterior and interior)	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application
Materials	Any component missing, damaged, or not as specified
Workmanship	Inadequate application of components, such as incomplete sealing or closure of flap, improper taping, loose strapping, or inadequate stapling Bulged or distorted container
Content	Number per container is more or less than required <u>1</u> /

1/ For this defect the following shall serve as evidence that the requirements have been met:

a. Ten unit packs (buckles) or two unit packs (clips) randomly selected from an intermediate pack from each shipping container in the sample shall be checked.

b. Two intermediate packs (buckles and clips) shall be checked from each shipping container in the sample to determine that the necessary number of unit packs are enclosed.

c. One shipping container shall be checked from the sample to determine that the necessary number of intermediate packs are enclosed (buckles and clips).

4.4.7 Palletization examination. The fully packaged and palletized end items shall be examined for the defects listed below. The lot size shall be expressed in units of palletized unit loads. The sample unit shall be one palletized unit load, fully packaged. The inspection level shall be S-1 and the AQL, expressed in terms of defects per hundred units, shall be 6.5.

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<u>Examine</u>	<u>Defect</u>
Finished dimensions	Length, width, or height exceeds specified maximum requirement
Palletization	Pallet pattern not as specified Interlocking of loads not as specified Load not bonded as specified
Weight	Exceeds maximum load limits
Marking	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application

4.5 Methods of inspection.

4.5.1 Lacquer test. Immerse the samples to be tested in a 2 percent by weight of chemically pure liver of sulphur (potassium sulfide) water solution, at a temperature of 100°F, for not less than 3 minutes. Remove and rinse the samples in warm 100° to 120°F, then cold 32° to 60°F, then hot 130° to 150°F water. Then wipe the samples gently with an absorbent cellulose material or whirl to remove residual moisture, and allow to air dry at room temperature for a period of 1 hour. Any sample failing to meet the drying lacquer film requirements as specified in 3.4.4.1 shall be a defect.

4.5.2 Function test of buckle, and clip (with clip attached to webbing). Test type II buckles and type III end clips by threading belt webbing (MIL-B-833) (see 6.4) with an end clip attached through the buckle in position of normal use. After the belt has been threaded through, the tongue shall be pressed closed and remain closed until manually opened. Any sample failing to meet the webbing requirements as specified in 3.3.2.1 or 3.3.2.2, as applicable, or any sample failing to meet the threading requirements as specified in 3.3.3, shall be a defect.

- * 4.5.3 Pull test. Test buckles for holding strength of clamp, rollers, and tongue by inserting belt webbing (MIL-B-833) (see 6.4) in position of normal use as shown on applicable drawing. Roller and clamp shall be in the locked position. Secure the webbing for the type I buckles to the machine clamps at the roller end and clamp end. Secure the webbing for the type II buckles to the machine clamps at the tongue end and clamp end. Any sample failing to meet the pull requirements as specified in 3.3 shall be a defect.

4.5.4 Adhesion test. Test class 4, sub-class A clips for adhesion of enamel by clamping clips on belt webbing (MIL-B-833) (see 6.4). Any sample failing to meet adhesion requirements as specified in 3.4.3.4.2 shall be a defect. The same belt with class 4, sub-class A clip attached and used or test specified in 4.5.2 may be used for this test.

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4.5.5 Clinching test, type III, class 1, sub-class B clip. Clinch the enameled end of the type III, class 1, sub-class B clip on 1-1/4 inch or 1 inch Government-furnished webbing so as to form a belt conforming to MIL-B-833 except that the length of the belt may be reduced to 8 inches for the purpose of this test. The width of the webbing shall depend upon the size of clip being tested. The clinching shall be done on a stamping press with the clearance between the flat platens at the bottoming point carefully adjusted to the maximum distance that will yield a smooth, closed end clip capable of passing through the assembled buckle without obstruction. The areas tested shall include the bend and adjacent surfaces. Any sample failing to meet adhesion requirements specified in 3.4.3.1.2 shall be a defect.

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 Unit pack.

* 5.1.1.1.1 Type I buckle. Each buckle shall be enclosed in a close-fitting clear polyethylene bag conforming to type II, style 1 of PPP-B-26, except that the film thickness shall be 0.00125 inch \pm 25 percent.

* 5.1.1.1.2 Type II buckles. Each buckle shall be unit packed in an end opening coin type envelope made from 20 pound minimum basis weight kraft paper (24 x 36-500). The size of the envelope shall be approximately 2-1/2 by 2-1/4 inches. Alternatively, each buckle may be enclosed in polyethylene bag as specified in 5.1.1.1.1.

5.1.1.1.3 Type III clips. Fifty clips of one size and class only, shall be mounted on a diecut, slotted paperboard card as shown on Drawing 2-4-63. The minimum thickness of the paperboard shall be 0.040 inch.

5.1.1.2 Intermediate pack.

5.1.1.2.1 Buckles. Forty-eight type I buckles of one size and class only, or fifty type II buckles of one size and class only, unit packed as specified in 5.1.1.1, shall be packed in an intermediate setup paperboard box conforming to type I, variety 1, class A, style 4 of PPP-B-676, or a fiberboard box conforming to style RSC, type CF (variety SW) or SF, class domestic, grade 175 of PPP-B-636. The inside dimensions of the box shall be approximately 7 inches in length, 5-5/8 inches in width, and 2-1/2 inches in depth. Each paperboard box shall be secured with 2-inch minimum width gummed paper tape conforming to type III, grade B of PPP-T-45, applied girthwise around the center and overlapping not less than 2 inches. Each fiberboard box shall be closed in accordance with method II of the appendix of PPP-B-636, except that the inspection shall be in accordance with 4.4.6.

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5.1.1.2.2 Clips. Six-hundred clips of one size and class only, unit packed as specified in 5.1.1.1, shall be packed in an intermediate setup paperboard box or fiberboard box constructed and closed as specified in 5.1.1.2.1. The inside dimensions of the box shall be approximately 8-7/8 inches in length, 8-5/8 inches in width, and 6-3/4 inches in depth. Approximate dimensions are furnished as a guide only.

- * 5.1.2 Commercial. Buckles and clips 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 Buckles. Five hundred and seventy-six type I buckles of one size and class only or six-hundred type II buckles of one size and class only, preserved as specified in 5.1, shall be packed in a fiberboard shipping container conforming to style RSC, grade V2s of PPP-B-636. Level A intermediate packs shall be packed on end, six in length, two in width, and one in depth within a shipping container. Inside dimensions of each shipping container shall be approximately 15-1/2 inches in length, 11-5/8 inches in width, and 7-1/8 inches in depth. Approximate dimensions are furnished as a guide only. Each shipping container shall be closed in accordance with method III, waterproofed in accordance with method V, and reinforced as specified in the appendix of PPP-B-636, except that the inspection shall be in accordance with 4.4.6. Shipping containers shall be arranged in unit loads in accordance with MIL-L-35078 for the type and class of load specified (see 6.2). When unit loads are strapped, strapping shall be limited to nonmetallic strapping, except for type II, class F loads.

- * 5.2.1.2 Clips. Seven thousand two-hundred clips of one size and class only, preserved as specified in 5.1, shall be packed in a fiberboard shipping container conforming to style RSC, grade V2s of PPP-B-636. Level A intermediate packs shall be packed flat, two in length, two in width, and three in depth within a shipping container. Inside dimensions of each shipping container shall be approximately 18-1/4 inches in length, 18 inches in width, and 20-1/4 inches in depth. Approximate dimensions are furnished as a guide only. Each shipping container shall be closed in accordance with method III, waterproofed in accordance with method V, and reinforced as specified in the appendix of PPP-B-636, except that the inspection shall be in accordance with 4.4.6. Shipping containers shall be arranged in unit loads in accordance with MIL-L-35078 for the type and class of load specified (see 6.2). When unit loads are strapped, strapping shall be limited to nonmetallic strapping, except for type II, class F loads.

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5.2.2 Level B packing.

5.2.2.1 Buckles. Five hundred and seventy-six type I buckles of one size and class only, or six hundred type II buckles of one size and class only, preserved as specified in 5.1, shall be packed in a fiberboard shipping container conforming to style RSC, type CF (variety SW) or SF, class domestic, grade 275 of PPP-B-636. Level A intermediate packs shall be packed on end, six in length, two in width, and one in depth within a shipping container. Inside dimensions of each shipping container shall be approximately 15-1/2 inches in length, 11-5/8 inches in width, and 7-1/8 inches in depth. Approximate dimensions are furnished as a guide only. Each shipping container shall be closed in accordance with method II as specified in the appendix of PPP-B-636, except that the inspection shall be in accordance with 4.4.6.

5.2.2.2 Clips. Seven thousand two-hundred clips of one size and class only, preserved as specified in 5.1, shall be packed in a fiberboard shipping container conforming to style RSC, type CF (variety SW) or SF, class domestic, grade 275 of PPP-B-636. Level A intermediate packs shall be packed flat, two in length, two in width, and three in depth within a shipping container. Inside dimensions of each shipping container shall be approximately 18-1/4 inches in length, 18 inches in width, and 20-1/4 inches in depth. Approximate dimensions are furnished as a guide only. Each shipping container shall be closed in accordance with method II as specified in the appendix of PPP-B-636, except that the inspection shall be in accordance with 4.4.6.

5.2.2.3 Weather-resistant fiberboard containers. When specified (see 6.2), shipping containers packed with buckles or clips shall be a grade V3c, V3s, or V4s fiberboard box fabricated in accordance with PPP-B-636 and closed in accordance with method III as specified in the appendix of PPP-B-636, except that the inspection shall be in accordance with 4.4.6.

* 5.2.3 Commercial packing. Buckles and clips, preserved as specified in 5.1, shall be packed in accordance with ASTM D 3951.

5.3 Palletization. When specified (see 6.2), buckles and clips, packed as specified in 5.2.2 and 5.2.3, shall be palletized on a 4-way entry pallet in accordance with load type Ia of MIL-STD-147. Pallet type shall be type I (4-way entry), type IV or type V in accordance with MIL-STD-147. Each prepared load shall be bonded with primary and secondary straps in accordance with bonding means K and L or film bonding means O or P. Pallet pattern shall be in accordance with the appendix of MIL-STD-147. Interlocking of loads shall be effected by reversing the pattern of each course.

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

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6. NOTES

6.1 Intended use. The buckles and clips are intended for use on web belts for trousers.

6.2 Ordering data. Acquisition documents should specify the following:

- a. Title, number, and date of this document.
- b. Type, class, sub-class, and size required (see 1.2).
- c. When a first article is required (see 3.1, 4.3, and 6.3).
- d. Selection of applicable levels of preservation and packing (see 5.1 and 5.2).
- e. Type and class of unit load required (see 5.2.1.1 and 5.2.1.2).
- f. When weather-resistant grade fiberboard shipping containers are required for level B packing of buckles or clips (see 5.2.2.3).
- g. When palletization is required (see 5.3).

* 6.3 First article. When a first article is required, it shall be inspected and approved under the appropriate provisions of FAR 52.209. The first article should be a preproduction sample. The contracting officer should specify the appropriate type of first article and the number of units to be furnished. The contracting officer should include specific instructions in all acquisition instruments regarding arrangements for selection, inspection, and approval of the first article.

6.4 Standard sample. For access to standard samples of satin finished buckles and clips and web belts, address the contracting activity issuing the invitation for bids.

6.5 Punching of type III clips. Punching of the blank for the clip produces a typical sheared edge which is smooth on one side and rough or sharp on the opposite side (see 3.3.3).

6.6 Recycled material. It is encouraged that recycled material be used when practical as long as it meets the requirements of this document (see 3.2).

* 6.7 Subject term (key word) listing.

Buckle
Clip
Trousers
Web belt

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6.8 Changes from previous issue. The margins of this document are 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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Army - GL
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Air Force - 82, 99
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