

MIL-C-8603B  
15 November 1984  
SUPERSEDING  
MIL-C-8603A  
30 September 1981

## MILITARY SPECIFICATION

### CLAMPS, LOOP TYPE, AND STRAPS, SUPPORT

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

#### 1. SCOPE

1.1 Scope. This specification covers support loop clamps, both cushioned and non-cushioned, for the clamping of wire bundles and non-hydraulic tubing (see 6.1).

#### 2. APPLICABLE DOCUMENTS

##### 2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. Unless otherwise specified, the following specifications, standards, and handbooks of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation form a part of this specification to the extent specified herein.

#### SPECIFICATIONS

##### FEDERAL

QQ-A-250/5 - Aluminum Alloy Alclad 2024, Plate and Sheet  
QQ-P-416 - Plating, Cadmium (Electrodeposited)  
PPP-B-566 - Boxes, Folding, Paperboard  
PPP-B-576 - Boxes, Wood, Cleated, Veneer, Paper Overlaid  
PPP-B-585 - Boxes, Wood, Wirebound

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Engineering Specifications and Standards Department (Code 93), Naval Air Engineering Center, Lakehurst, NJ 08733, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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- PPP-B-591 - Boxes Fiberboard, Wood-Cleated
- PPP-B-601 - Boxes, Wood, Cleated-Plywood
- PPP-B-621 - Boxes, Wood, Nailed and Lock-Corner
- PPP-B-636 - Boxes, Shipping, Fiberboard
- PPP-B-640 - Boxes Fiberboard, Corrugated, Triple-Wall
- PPP-B-665 - Boxes, Paperboard, Metal Edged and Components
- PPP-B-676 - Boxes Setup

## MILITARY

- MIL-P-116 - Preservation, Methods of
- MIL-S-5059 - Steel, Corrosion-Resistant (18-8), Plate, Sheet and Strip
- MIL-H-5440 - Hydraulic Systems, Aircraft, Types I and II, Design and Installation Requirements for
- MIL-C-5541 - Chemical Conversion Coatings on Aluminum and Aluminum Alloys
- MIL-H-6088 - Heat Treatment of Aluminum Alloys
- MIL-R-25988 - Rubber, Fluorosilicone Elastomer, Oil-and Fuel-Resistant Sheets, Strips, Molded Parts, and Extruded Shapes

(See Supplement 1 for list of AN, MS, and DS sheet form standards.)

## STANDARDS

## MILITARY

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-129 - Marking for Shipment and Storage
- MIL-STD-1188 - Commercial Packaging of Supplies and Equipment

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

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. The issues of the documents which are indicated as DoD adopted shall be of the issue listed in the current DoDISS and the supplement thereto, if applicable.

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- ANSI/ASTM A380 - Cleaning and Descaling Stainless Steel Parts, Equipment, and Systems, Standard Recommended Practice for

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ASTM D297	- Rubber Products - Chemical Analysis, Standard Methods for
ASTM D395	- Rubber Property - Compression Set, Standard Test Methods for
ANSI/ASTM D412	- Rubber Properties in Tension, Standard Test Methods for
ANSI/ASTM D471	- Rubber Property - Effect of Liquids, Standard Test Method for
ASTM D624	- Rubber Property - Tear Resistance, Standard Test Method for
ASTM D1149	- Rubber Deterioration - Surface Ozone Cracking in a Chamber (Flat Specimen) Standard Test Method for
ASTM D1457	- PTFE Molding and Extrusion Materials, Standard Specification for
ASTM D2240	- Rubber Property - Durometer Hardness, Standard Test Method for

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

## AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI-H35.2(M) - Dimensional Tolerances for Aluminum Mill Products

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

## SOCIETY OF AUTOMOTIVE ENGINEERS (SAE)

AMS 2491	- Surface Treatment of Polytetrafluoroethylene, Bonding Preparation
AMS 3209	- Chloroprene Rubber, Weather Resistant, 65-75
AMS 3215	- Nitrile Rubber, Aromatic Fuel Resistant, 65-75
AMS 3303	- Silicone Rubber, General Purpose, 55-65
AMS 5510	- Steel Sheet, Strip, and Plate, Corrosion and Heat Resistant 18 Cr - 10.5 Ni - 0.40 Ti (SAE 30321) Solution Heat Treated
AMS MAM2242	- Tolerances, Metric, Corrosion and Heat Resistant Steel, Iron Alloy, Titanium, and Titanium Alloy Sheet, Strip, and Plate.

(Applications for copies should be addressed to The Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096.)

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references, other than specification sheets cited herein, the text of this specification shall take precedence.

## 3. REQUIREMENTS

3.1 AN and DS and MS standards. The individual item requirements shall be as specified herein and in accordance with the applicable AN and DS and MS standards. In the event of any conflict between the requirements of this specification and the AN and DS and MS standards, the latter shall govern.

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3.2 Material.

3.2.1 Band. The bands shall be fabricated of the following materials as specified (see 3.1).

3.2.1.1 Aluminum alloy. Aluminum alloy shall be Alclad 2024-0 in accordance with QQ-A-250/5.

3.2.1.2 Steel. Steel shall be AISI 1010, cold-rolled, temper No. 4, in accordance with ASTM A109.

3.2.1.3 Corrosion-resistant steel. Corrosion-resistant steel shall be Type 302 in accordance with MIL-S-5059 or Type 321 in accordance with AMS 5510 as specified in the individual specification sheets.

3.2.2 Cushion. The cushions shall be fabricated of the following materials as specified (see 3.1).

3.2.2.1 Nitrile rubber. Nitrile rubber shall be in accordance with AMS 3215 and the ozone resistance requirements specified herein (see 4.5.3). The colors shall be solid yellow.

3.2.2.2 Chloroprene rubber (neoprene). Chloroprene elastomer shall conform to AMS3209 and the ozone resistance requirements as specified herein. The color shall be black with a blue identifier. Extruded material shall be identified by a blue stripe extending lengthwise along both edges of the cushion. The stripe width shall be equal to the width of the cushion edge. Molded material shall be identified by a blue area at the wedge end. The blue area shall be on one or both edges of the cushion and may include the wedge and shall have a minimum length of .125 inch to a maximum of .750 inch. The blue area shall be located within an area not to exceed 1.500 inch or 50% of the total cushion length, whichever is smaller, when measured from the wedge end. In no case shall the blue area extend beyond 50% of the cushion length. The material used for the blue identifier shall be the same as the cushion material except colored blue. Inking or other surface coloring methods shall not be used.

3.2.2.3 Silicone rubber. Silicone rubber shall be in accordance with AMS 3303, except the minimum tear strength shall be 100 lbs/inch (17.5 kN/m) when tested as specified in 4.5.5. The color shall be solid (pigmented) white.

3.2.2.4 Fluorosilicone rubber. Fluorosilicone rubber shall be in accordance with MIL-R-25988, Type II, Class 1, Grade 60. The color shall be solid blue.

3.2.2.5 Ethylene propylene rubber. Ethylene propylene rubber shall have the properties specified in Table I when tested as specified in 4.5.6. The color shall be solid purple. Unless otherwise specified, the results of the tests shall be the average (arithmetic mean) of the results of five specimens. The property measurements shall be performed immediately after removal from the specified immersion bath.

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3.2.2.5.1 Ethylene propylene compression set. When tested as specified in paragraph 4.5.6.7, the average compression set value of three specimens shall not exceed 70 percent.

3.2.2.6 Polytetrafluoroethylene (PTFE). PTFE material shall be in accordance with ASTM D1457 Type I. The color shall be solid brown.

TABLE I. PROPERTIES OF ETHYLENE PROPYLENE RUBBER.

TEST	REQUIRED ORIGINAL PROPERTIES	ALLOWABLE CHANGE FROM ORIGINAL PROPERTIES	
		AFTER HYDRAULIC FLUID IMMERSION (SKYDROL 500B) 22 HRS @ 275°F (135°C)	AFTER HEAT AGING 70 HRS @ 275°F (135°C)
Hardness Durometer "A"	65-75	45 Min	85 Max
Tensile strength-psi (kPA)	2000 (13,790) Min	1000 (6895) Min	1600 (5516) Min
Elongation - %	500 Min	375 Min	350 Min
Tear Strength - pli (kN/m)	200 (35) Min	120 (21) Min	160 (28) Min
Specific gravity	As tested	-	+2% Change
Volume change - %	As measured	30% Increase	10% Decrease

### 3.3 Design and construction.

3.3.1 Dimensions. Dimensions and tolerances shall conform to the dimensional requirements of the applicable specification sheet.

3.3.2 Forming. Forming of the 90° bend foot and offset in aluminum bands shall be performed in the annealed condition. Curling (sizing) may be done subsequent to heat treatment.

3.3.2.1 Curling. The clamps shall be curled through a minimum of 270° of the mandrel circumference. The curve of the band material, due to the slitting operation, shall be oriented away from the clamp inner diameter. Normal springback of the clamp from the curled position is acceptable.

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### 3.4 Heat treatment.

3.4.1 Aluminum alloy. Aluminum alloy bands shall be heat treated to T42 temper in accordance with MIL-H-6088.

### 3.5 Finish.

3.5.1 Aluminum alloy. Aluminum alloy bands shall be finished in accordance with MIL-C-5541, Class 1A.

3.5.2 Steel. Steel bands shall be cadmium plated in accordance with QQ-P-416, Type I, Class 2 (7.6  $\mu$ m).

3.5.3 Corrosion-resistant steel. Corrosion-resistant steel shall be cleaned and descaled in accordance with ASTM A-380.

3.5.4 Polytetrafluoroethylene (PTFE). Cushions fabricated from PTFE shall be sodium treated in accordance with the surface treatment paragraphs of AMS 2491 to reduce the materials lubricity. All other paragraphs of AMS 2491 shall not apply.

3.6 Performance. The clamps shall meet the performance requirements specified herein when tested in accordance with Section 4.

3.7 Identification marking. Each clamp shall be marked with the complete AN, MS or DS part number in accordance with the applicable drawings. The markings shall be placed on the clamps outer surface, and shall be visible with the cushion in place.

3.8 Wedge bond integrity (vulcanized wedges only). Clamp cushions of all types of materials, requiring a vulcanized wedge, as specified in the individual specification sheet, shall be tested in accordance with 4.5.7. Separation of the wedge from the extruded cushion, by failure of the bonded area, shall be cause for rejection of the clamp. Tearing of the wedge or cushion, without failure of the bonded area, shall not be cause for rejection.

3.9 Tolerances (metric). Tolerances on metrically dimensioned band materials shall be in accordance with the following:

Corrosion-resistant steel	- AMS MAM2242
Aluminum alloy	- ANSI H35.2(M)

3.10 Workmanship. Clamps shall be processed in such a manner as to insure that the clamps are of uniform quality. The bands shall have a smooth finish and shall be free of burrs, slivers, sharp edges or other defects which would adversely effect life, serviceability and appearances. Cushion material shall be uniform in quality, clean, smooth and free from tears, voids and imperfections detrimental to appearance and performance. The wedge shall be firmly attached and free from voids and gaps in the bonded area.

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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 the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

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

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

4.3 Material inspection. Material inspection shall consist of certification supported by data verifying that the materials used in fabricating the clamps are in accordance with the requirements of 3.2 prior to such fabrication.

4.3.1 Material certification. Records of tests showing conformance to the applicable material specifications (3.2) for the band and cushion shall be made available to the clamp manufacturer for each lot of material. The clamp manufacturer shall require from each material supplier (band and cushion) a document certifying conformance to the applicable material specification and other parameters specified in the applicable paragraph.

4.4 Quality conformance inspection. Quality conformance inspection shall consist of the tests and inspection specified in Table II, conducted in accordance with 4.5. The Quality Conformance Test Report shall be in accordance with 6.2.1.



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TABLE II. QUALITY CONFORMANCE INSPECTION.

INSPECTION	REQUIREMENT PARAGRAPH	TEST METHOD PARAGRAPH
Group A		
Examination	<u>1/</u>	4.5.1
Closure test	3.3.1	4.5.2
Group B		
Nitrile ozone resistance	3.2.2.1	4.5.3
Chloroprene ozone resistance	3.2.2.2	4.5.4
Silicone tear strength	3.2.2.3	4.5.5
Ethylene Propylene hardness	3.2.2.5	4.5.6.1
Ethylene Propylene tensile strength	3.2.2.5	4.5.6.2
Ethylene Propylene elongation	3.2.2.5	4.5.6.3
Ethylene Propylene tear strength	3.2.2.5	4.5.6.4
Ethylene Propylene specific gravity	3.2.2.5	4.5.6.5
Ethylene Propylene volume change	3.2.2.5	4.5.6.6
Ethylene Propylene compression set	3.2.2.5.1	4.5.6.7
Wedge bond integrity	3.8	4.5.7

1/ All requirements not covered by tests.

4.4.1 Inspection lot. An inspection lot shall consist of clamps for a particular size, and material, produced under essentially the same manufacturing conditions and presented for inspection at the same time.

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

4.4.3 Sampling for group A inspection. Sampling shall be in accordance with MIL-STD-105, inspection level II, with an Acceptable Quality Level (AQL) of 1.0 percent defective for major defects. For minor defects, inspection level I with an AQL of 4.0 percent defective shall apply.



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4.4.3.1 Classification of defects. Defects shall be classified as specified in Table III.

TABLE III. CLASSIFICATION OF DEFECTS.

CATEGORY	DEFECT
Critical	
1	Specified material (cushion)
Major	
101	Material thickness (cushion)
102	Material thickness (band)
103	Inside loop diameter (clamp assy)
104	Identification color (cushion)
105	Mounting hole diameter
106	Width of material (band)
107	Burrs, slivers or sharp edges (band)
108	Tears or imperfections (cushion)
109	Separated wedge (cushion when required)
Minor	
201	All other dimensions
202	Marking missing, incorrect, insufficient, illegible or not permanent

4.4.4 Sampling for group B inspection. Sampling shall be in accordance with MIL-STD-105, inspection level S3, with an AQL of 0.25 percent defective and may be made on sample units which have been subjected to and have passed group A inspection.

4.4.4.1 Cushion samples. Cushion material test specimens shall be cut from clamp cushions and shall be of sufficient size to be tested in accordance with the applicable test methods. Tensile and elongation cushion material test specimens may be cut from larger size clamp cushions of the same inspection lot, and shall be provided by the manufacturer.

4.4.5 Sampling for protective finish test. Sampling for protective finish test shall be in accordance with the applicable specifications referenced in 3.5.

4.4.6 Inspection of packaging. The sampling and inspection of the preservation, packing and container marking shall be in accordance with the applicable specifications specified in Section 5.

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#### 4.5 Methods of inspection.

4.5.1 Examination. Sample clamps shall be thoroughly examined to determine conformance with this specification and applicable specification sheets with respect to all requirements not covered by tests.

4.5.2 Closure test. The clamp shall be installed on a bar having a diameter equal to the nominal tube outside diameter within  $\pm .001$  inch ( $\pm 0.025$  mm). The gap between the clamp legs, at the mounting screw holes, shall meet within the following specified tolerance limits; the holes shall be in alignment within  $.010$  inch ( $0.254$  mm) and the band shall be flat within  $.008$  inch ( $0.203$  mm) through the clamp width and circumference.

4.5.3 Nitrile ozone resistance. The nitrile rubber material shall be subjected to the following test:

4.5.3.1 Test samples. Test samples shall be five (5) clamps/straps of the smallest size specified on the individual specification sheet. The clamps/straps shall be the complete assembly including the cushion. The clamps/straps shall be secured, in the normal manner, to a steel mandrel. The mandrel profile shall match the internal profile of the clamp/strap within  $+0.000$ ,  $-0.005$  inch ( $0$ ,  $-1.27$  mm).

4.5.3.2 Conditioning treatment. The mounted test samples shall be conditioned by exposure to dry air at a temperature of  $212^{\circ} \pm 5^{\circ}\text{F}$  ( $100^{\circ} \pm 3^{\circ}\text{C}$ ) for a period of 70 hours.

4.5.3.3 Ozone test. The mounted test samples shall be placed in a test chamber having an ozone concentration of  $600 \pm 30$  parts per hundred million and a temperature of  $125^{\circ} \pm 5^{\circ}\text{F}$  ( $52^{\circ} \pm 3^{\circ}\text{C}$ ). The duration of the test shall be six (6) hours. The ozone generation and measurement technique shall be in accordance with ASTM D1149.

4.5.3.4 Criteria for conformance. Criteria for conformance to the nitrile ozone resistance test is the ability of the clamp/strap cushion to meet the requirements of the test without any evidence of cracking or checking visible to the unaided eye.

4.5.4 Chloroprene ozone resistance. The chloroprene rubber material shall be subjected to the following test:

4.5.4.1 Test specimen. The test specimen shall be cut from an actual clamp cushion. If the particular clamp cushion is not sufficiently long to obtain the specimen, a longer section may be used as long as it is verified that the longer section comes from the same lot and cure as the short cushion section.

4.5.4.2 Conditioning treatment. The test specimen shall be conditioned by exposure to dry air at a temperature  $212^{\circ} \pm 5^{\circ}\text{F}$  ( $100^{\circ} \pm 3^{\circ}\text{C}$ ) for a period of 70 hours.

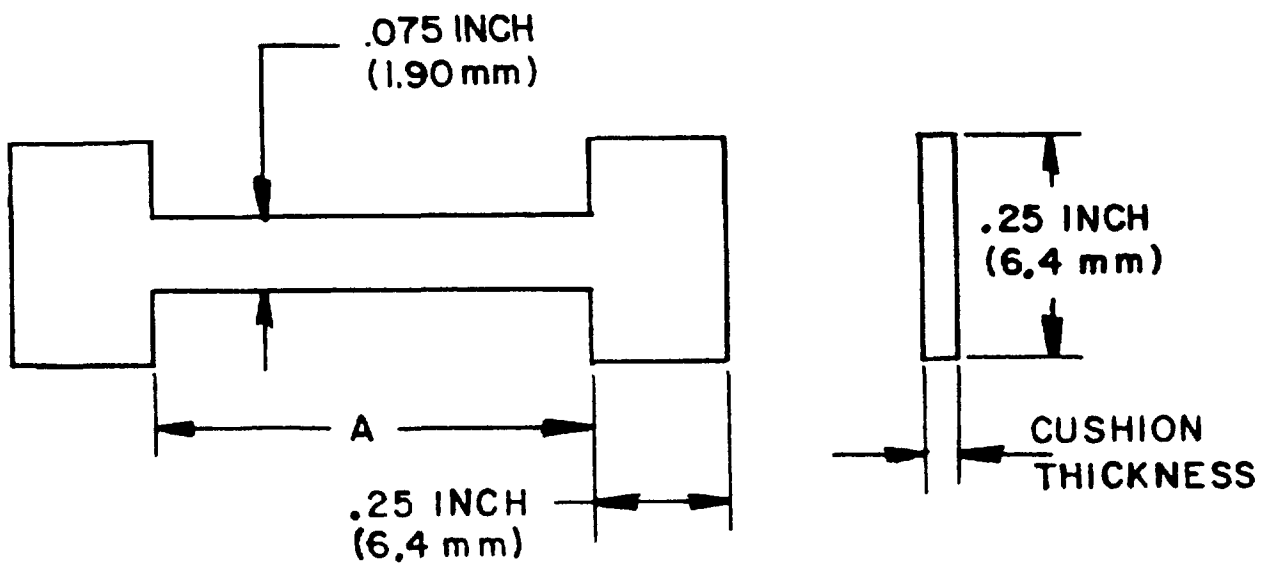
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4.5.4.3 Test specimen shape. The test specimen shall be cut parallel to the longitudinal direction of the clamp cushion. The specimen shall be a dumbbell shape and shall have a reduced section width of  $.075 \pm .010$  inches ( $1.9 \pm 0.25$  mm) and a reduced length of 1, 1.5 or 2 inches (25, 38 or 51 mm), see Figure 1.

4.5.4.4 Ozone test. Measure the thicknesses of the specimens and record. Mount the specimens in a suitable fixture and longitudinally strain to  $70 \pm 3$  percent. The fixture holding the strained test specimens shall be placed in a test chamber having an ozone concentration of  $600 \pm 30$  parts per hundred million and a temperature of  $125^\circ \pm 5^\circ\text{F}$  ( $52^\circ \pm 3^\circ\text{C}$ ). The ozone generation and measurement technique shall be in accordance with ASTM D1149. The duration of the test for various thicknesses shall be as follows:

<u>Unstrained specimen thickness</u>	<u>Exposure time</u>
.041 to .050 in (1.04 to 1.27 mm)	2 hr 50 min
.051 to .060 in (1.28 to 1.52 mm)	3 hr 30 min
.061 to .070 in (1.53 to 1.78 mm)	4 hr 10 min
.071 to .080 in (1.79 to 2.03 mm)	4 hr 50 min

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**A = 1, 1.5 OR 2 INCHES (25, 38 OR 51 mm)**

FIGURE 1. DUMBBELL TEST SPECIMEN SHAPE.

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4.5.4.5 Criteria for conformance. Criteria for conformance to the chloroprene ozone resistance test is the ability of the strained specimen to meet the requirements of the test without complete breakage. Surface deterioration or severe crack propagation without complete breakage shall not be cause for failure.

4.5.5 Silicone tear strength. The tear strength of silicone rubber shall be tested in accordance with ASTM D624, Die "B".

4.5.6 Ethylene propylene properties. Ethylene propylene rubber shall be tested as specified below and meet all requirements of Table I.

4.5.6.1 Hardness. Hardness shall be tested in accordance with ASTM D2240.

4.5.6.2 Tensile strength. Tensile strength shall be tested in accordance with ASTM D412.

4.5.6.3 Elongation. Elongation shall be tested in accordance with ASTM D412.

4.5.6.4 Tear strength. Tear strength shall be tested in accordance with ASTM D624, Die "B".

4.5.6.5 Specific gravity. Specific gravity shall be tested in accordance with ASTM D297.

4.5.6.6 Volume change. Volume change shall be tested in accordance with ASTM D471.

4.5.6.7 Ethylene propylene compression set test. Three samples of the cushion material shall be subjected to dry air at a temperature of  $212^{\circ} + 5^{\circ}\text{F}$  ( $100^{\circ} + 3^{\circ}\text{C}$ ) for a period of 70 hours and then tested in accordance with ASTM D395, Method B. The ethylene propylene samples shall meet the requirements specified in 3.2.2.5.1.

4.5.7 Wedge bond test. Cushions with vulcanized wedges shall be subjected to a wedge bond test. The cushion shall be removed from the metal band and heat aged at  $150^{\circ} + 10^{\circ}\text{F}$  ( $65.5^{\circ} + 5.5^{\circ}\text{C}$ ) for 24 hours. Remove cushion from heat chamber and allow to cool to room temperature. Grip the wedge at approximately 50 percent of its height with a pair of approximately 1/2-inch (12.7 mm) wide, flat-nose, plain-jaw pliers. Pull on the wedge, without twisting motion until rubber tearing occurs. Pulling force shall be applied slowly. Wedge shall meet the criteria specified in 3.8.

4.5.8 Physical properties. The physical properties of the cushion material shall be tested in accordance with the specified material specification for the individual cushion material listed in 3.2.2. Test specimens shall be cut from actual clamp cushions. If a particular clamp cushion is not long enough to obtain a sample, a longer section may be used, provided it can be verified that the longer section comes from the same lot as the actual cushion sample. Test specimen failures in the area of the holding jaws outside of the test section shall be disregarded and another sample tested.

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## 5. PACKAGING

5.1 Preservation and packaging. The clamps shall be preserved and packaged in accordance with commercial methods unless Level A or B is specified (see 6.2).

5.1.1 Level A. Clamps shall be preserved and packaged in accordance with Method III of MIL-P-116 except nitrile cushioned clamps shall be in accordance with Method 1A-8. Unit containers shall conform to PPP-B-566, PPP-B-665, PPP-B-676 or PPP-B-636. Box closure shall be in accordance with the appendix to the applicable box specification.

5.1.2 Commercial. Preservation and packaging shall be in accordance with MIL-STD-1188.

5.2 Packing. The clamps shall be packed in accordance with commercial methods unless Level A or B is specified (see 6.2).

5.2.1 Level A. Clamps packaged as described in 5.1 shall be packed in boxes conforming to any one of the following specifications.

PPP-B-576	Class 2
PPP-B-585	Class 2 or 3
PPP-B-591	Class 2
PPP-B-601	Overseas
PPP-B-621	Class 2
PPP-B-636	Weather resistant
PPP-B-640	Class 2

5.2.2 Level B. Clamps packaged in accordance with 5.1 shall be packed in boxes conforming to any one of the following specifications.

PPP-B-576	Class 1
PPP-B-585	Class 1
PPP-B-591	Class 1
PPP-B-601	Domestic
PPP-B-621	Class 1
PPP-B-636	Domestic
PPP-B-640	Class 1

5.2.3 Commercial. Packing shall be in accordance with MIL-STD-1188.

5.3 Marking. Marking of interior packages and exterior shipping containers shall be in accordance with MIL-STD-129 or MIL-STD-1188, as applicable.

5.3.1 Nitrile cushion clamps. Nitrile cushion clamps should also include the following note on the container: "Do not open package until installation."

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## 6. NOTES

6.1 Intended use. The clamps are intended for use in general aircraft clamping applications including electrical systems. For high performance loop style clamps for use in MIL-H-5440 hydraulic systems, see MIL-C-85052. Plain (uncushioned) AN742 clamps are for electrical bonding applications.

6.2 Ordering data. Acquisition documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) Applicable AN, MS or DS part number (see 3.1).
- (c) Applicable levels of preservation, packaging, and packing (see 5).

6.2.1 Contract data requirements. Items of deliverable data required by this specification are cited in the following paragraphs:

<u>Paragraph</u>	<u>Data requirements</u>	<u>Applicable DID</u>
4.4	Quality Conformance Test Report	DI-R-4026 <u>1/</u>

1/ Such data will be delivered as described on the above approved (numbered) DID's (Data Item Description/DD Form 1664) when specified on DD Form 1423 (Contract Data Requirements List) and incorporated into the contract.

6.3 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

## Custodians:

Navy - AS  
Air Force - 99  
Army - AV

## Preparing activity:

Navy - AS  
(Project 5340-1526)

## Review activities:

Air Force - 11, 82  
DLA - IS

## Agent:

DLA - IS



**INSTRUCTIONS:** In a continuing effort to make our standardization documents better, the DoD provides this form for use in submitting comments and suggestions for improvements. All users of military standardization documents are invited to provide suggestions. This form may be detached, folded along the lines indicated, taped along the loose edge (*DO NOT STAPLE*), and mailed. In block 5, be as specific as possible about particular problem areas such as wording which required interpretation, was too rigid, restrictive, loose, ambiguous, or was incompatible, and give proposed wording changes which would alleviate the problems. Enter in block 6 any remarks not related to a specific paragraph of the document. If block 7 is filled out, an acknowledgement will be mailed to you within 30 days to let you know that your comments were received and are being considered.

**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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**STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL***(See Instructions - Reverse Side)***1. DOCUMENT NUMBER**  
MIL-C-8603, Rev B**2. DOCUMENT TITLE**  
CLAMP, LOOP TYPE, AND STRAP, SUPPORT**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)**