

MIL-C-3133C
4 August 1976
SUPERSEDING
MIL-C-3133B
22 March 1963

MILITARY SPECIFICATION

CELLULAR ELASTOMERIC MATERIALS, MOLDED OR FABRICATED PARTS

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

1. SCOPE

1.1 This specification establishes the requirements for molded or fabricated parts of cellular elastomeric materials (see 3.1).

2. APPLICABLE DOCUMENTS

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

SPECIFICATIONS

FEDERAL

PPP-B-576 - Boxes, Wood, Cleated, Veneer, Paper Overlaid
PPP-B-585 - Boxes, Wood, Wirebound
PPP-B-591 - Boxes, Shipping, 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, Tripple Wall

MILITARY

MIL-P-116 - Preservation, Packaging, Methods of
MIL-L-10547 - Liner, Case, and Sheet, Overwrap, Water-Vaporproof or
Waterproof, Flexible

FSC 9320

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Army Materials and Mechanics Research Center, Watertown, MA 02172 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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STANDARD

FEDERAL

Fed. Std. No. 356 - Commercial Packaging of Supplies and Equipment

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-129 - Marking for Shipment and Storage
MIL-STD-190 - Identification Marking of Rubber Products
MIL-STD-293 - Visual Inspection Guide for Cellular Rubber Items
MIL-STD-670 - Classification System and Tests for Cellular Elastomeric
Materials

(Copies of specifications, standards, drawings, and publications required by suppliers 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. Fabricated parts furnished under this specification shall be manufactured from elastomeric compositions in accordance with one of the types, classes and styles designated in MIL-STD-670.

3.2 Physical properties. The physical properties for the type, class and style of elastomeric material required shall conform to MIL-STD-670.

3.2.1 In addition to the tests specified for the type, class, style required, additional specific tests deemed necessary shall be specified (see 6.2).

3.3 Color. Unless otherwise specified (see 6.2) the color of material shall be at the manufacturer's option.

3.4 Dimensions. The length, width and thickness shall be as specified (see 6.2).

3.4.1 Tolerances. Tolerances for length, width, and thickness shall be in accordance with applicable drawings or as specified (see 6.2). If no tolerances are specified values listed in tables I and II shall apply.

Table I. Dimensional tolerances of molded parts (latex, silicone, urethane and vinyl foams)

Thickness, in. (mm)		Length and width, in. (mm)	
Dimension	Tolerance		Tolerance
	Plus	Minus	
<u>Cored</u>			
0-3 (0-76) incl	1/8 (3)	1/16 (2)	3/16 (5)
3-5 (76-127) incl	3/16 (5)	1/8 (3)	3/8 (10)
5 (127) and over	1/4 (6)	3/16 (5)	1/2 (13)
			5/8 (16)
			3/4 (19)
			1/2 (13)
			5/8 (16)
			3/4 (19)
			7/8 (22)
			1-1/8 (29)
			1-1/2 (41)
<u>Uncored</u>			
Up to and including 1/2 (13)	1/16 (2)	1/16 (2)	5/16 (8)
From 1/2 (12.7) to 1 (25)	1/8 (3)	1/16 (2)	1/2 (13)
Over 1 (25)	1/8 (3)	3/16 (5)	11/16 (18)
			7/8 (22)
			1-1/16 (29)
			1-1/4 (35)
			1-3/8 (38)
			1-1/2 (41)

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Table II. Dimensional tolerances of molded parts
(sponge and expanded rubbers)

Thickness, in. (mm)		Length and width, in. (mm)			
Dimension	Tolerance		Dimension	Tolerance	
	Plus	Minus		Plus	Minus
Sponge rubbers					
1/8 (3) and under Over 1/8 (3) to 1/2 (13) incl Over 1/2 (13)	1/64 (0.4)	1/64 (0.4)	6 (152) and under Over 6 (152) to 18 (457) Over 18 (457)	1/16 (2)	1/16 (2)
	1/32 (0.8)	1/32 (0.8)		1/8 (3)	1/8 (3)
	3/64 (1.2)	3/64 (1.2)		1.0%	1.0%
Expanded rubbers					
1/8 (3) to 1/2 (13) incl Over 1/2 (13)	1/16 (2)	1/16 (2)	6 (152) and under 6 (152) to 12 (305) Over 12	1/4 (6)	1/4 (6)
	3/32 (2.4)	3/32 (2.4)		3/8 (10)	3/8 (10)
				3%	3%

3.5 Workmanship. The cellular elastomeric material shall be clean, well-finished and free from trapped air, voids, cracks, tears or any other defects which may affect its appearance or serviceability (see 4.5).

3.6 Marking. Unless otherwise specified (see 6.2), the parts shall be marked in accordance with the applicable drawing or purchase order or by identification marking of MIL-STD-190.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, 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 Inspection lot. All units of the same size, type, class, style and suffix designation, offered to the Government at one time, shall be considered a lot for the purpose of inspection.

4.2.1 Unit of product. A unit of product shall be one cellular fabricated part of the dimensions specified.

4.3 Quality conformance inspection. Quality conformance inspection shall be performed on the sample units selected in accordance with 4.4. The inspection shall include the examination of 4.5 and the tests of 4.6.

4.4 Sampling.

4.4.1 Sampling for examination. Unless otherwise specified (see 6.2), a random sample of cellular units shall be selected from each lot offered to the Government in accordance with MIL-STD-105 at inspection level II. In terms of defects per 100 units, the acceptable quality level shall be 2.5 for major defects and 4.0 for minor defects.

4.4.2 Sampling for tests. A random sample of cellular units shall be selected from each lot offered to the Government in accordance with MIL-STD-105 at inspection level S-4. In terms of defects per 100 units, the acceptable quality level shall be 2.5.

4.5 Visual and dimensional examination. Each unit selected shall be examined to verify compliance with this specification. Units shall be examined for defects listed in MIL-STD-293 and table III.

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Table III. Classification of defects

Defect		Reference paragraph
Major		
101	Type, class and style of material not as specified	3.1
102	Dimensions not as specified	3.4
103	Workmanship not as specified	3.5
Minor		
201	Marking not as specified	3.6

4.6 Tests. Samples selected in accordance with 4.4.2 shall be subjected to the test referenced in MIL-STD-670 for the type, class, and style of material specified. Units failing to pass any of the applicable tests shall be cause for rejection.

4.7 Inspection of preparation for delivery. The marking and preparation for delivery requirements of cellular fabricated parts shall be inspected to determine compliance with the applicable requirements of section 5 of this specification.

5. PACKAGING

(The preparation for delivery requirement specified herein apply only to direct Government procurements.)

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

5.1.1 Level A. Fabricated items shall be wrapped, boxed, or otherwise protected against deformation and abrasion. Unless otherwise specified (see 6.2), items shall be unit packaged in accordance with methods I and III of MIL-P-116, or when applicable and appropriate IA-14 of MIL-P-116. Closure of methods I and III shall be accomplished by taping all seams and joints with waterproof tape. The method shall be determined by the degree of protection required for the item.

5.1.2 Commercial. Cellular materials shall be packaged in accordance with Fed. Std. No. 356.

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

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5.2.1 Level A. Fabricated items packaged as specified, shall be packed in boxes conforming to any one of the following specifications at the option of the supplier:

<u>Specification</u>	<u>Type or class</u>
PPP-B-576	Class 2
PPP-B-585	Class 3 use
PPP-B-591	Class II
PPP-B-601	Overseas type
PPP-B-621	Class 2
PPP-B-636	Class weather resistant
PPP-B-640	Class 2

When required, shipping containers shall have case liners conforming to MIL-L-10547. Case liners shall be closed and sealed in accordance with the appendix to MIL-L-10547. Case liners for fiberboard boxes, PPP-B-636 and PPP-B-640 may be omitted provided all center and edge seams and manufacturer's joints are sealed and waterproofed with pressure sensitive tape in accordance with the applicable fiberboard box specification. Shipping containers shall be closed, strapped or banded in accordance with the applicable box specification or appendix thereto. The gross weight of wood-cleated boxes shall not exceed 200 pounds; fiberboard boxes shall not exceed the weight limitations of the applicable fiberboard box specification.

5.2.2 Level B. Fabricated items, packaged as specified (see 6.2), shall be packed in boxes conforming to any of the following specifications at the option of the supplier:

<u>Specification</u>	<u>Type or class</u>
PPP-B-576	Class 1
PPP-B-585	Class 1 or 2 use
PPP-B-591	Class 1
PPP-B-601	Domestic type
PPP-B-621	Class 1
PPP-B-636	Class domestic
PPP-B-640	Class 1

Shipping containers shall be closed in accordance with the applicable box specification or appendix thereto. The gross weight of wood or wood-cleated boxes shall not exceed 200 pounds; fiberboard boxes shall not exceed the weight limitations of the applicable fiberboard box specification.

5.2.3 Commercial. Packing shall be in accordance with Fed. Std. No. 356.

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5.3 Marking. In addition to any special marking required by the contract or order (see 3.6 and 6.2), interior packages and exterior shipping containers shall be marked for shipment in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. The cellular parts covered in this specification are intended for use in protecting equipment against shock and vibration, in the absorption of noise, or where resiliency is required and for general purpose applications. The elastomeric materials from which the parts are fabricated include latex, vinyl, urethane and silicone foams; and sponge and expanded rubbers. The base material used in their manufacture may be natural rubber, reclaimed rubber, synthetic rubber or rubber-like materials, alone or in combination. Ebonite cellular rubbers are not included.

6.2 Ordering data. Procurement documents should specify the following:

- a. Title, number and date of this specification.
- b. Type, class, style and suffix designation of MIL-STD-670 (see 3.1 and 3.2).
- c. If additional tests are required (see 3.2.1).
- d. If a particular color is required (see 3.3).
- e. Dimensions and tolerances required (see 3.4 and 3.4.1).
- f. If different marking is required (see 3.6 and 5.3).
- g. Level of packaging and level of packing required (see 5.1.1 and 5.2).

6.3 Relationship to commercial standards. This specification covers the requirements of materials similar to materials covered by the following standards of the American Society for Testing and Materials (ASTM).

For Latex Foams	D 1055
For Sponge and Cellular Foam	D 1056
For Cellular Polyvinyl Chloride	D 1565 and D 1667

Custodians:

Army - MR
Navy - SH
Air Force - 99

Preparing activity:

Army - MR

Project No. 9320-0254

Review activities:

Army - EA, GL, MU, WC
DSA - GS

User activities:

Army - AT, MI, SM

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Watertown, Massachusetts 02172

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SPECIFICATION ANALYSIS SHEET			Form Approved Budget Bureau No 119 R004
<p style="text-align: center; margin: 0;"><u>INSTRUCTIONS</u></p> <p style="margin: 0; font-size: x-small;">This sheet is to be filled out by personnel either Government or contractor involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity.</p>			
SPECIFICATION MIL-C-3133C, Cellular Elastomeric Materials, Molded or Fabricated Parts			
ORGANIZATION		CITY AND STATE	
CONTRACT NO	QUANTITY OF ITEMS PROCURED	DOLLAR AMOUNT \$	
MATERIAL PROCURED UNDER A <input type="checkbox"/> DIRECT GOVERNMENT CONTRACT <input type="checkbox"/> SUBCONTRACT			
1 HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE? A GIVE PARAGRAPH NUMBER AND WORDING 			
B RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES 			
2 COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID 			
3 IS THE SPECIFICATION RESTRICTIVE? <input type="checkbox"/> YES <input type="checkbox"/> NO IF YES IN WHAT WAY? 			
4 REMARKS / Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity. 			
SUBMITTED BY (Printed or typed name and activity)			DATE

DD FORM 1426

REPLACES NAVSHIPS FORM 4863 WHICH IS OBSOLETE