



Standard Specification for Phenolic Raw Materials for the Use in Bearing Cages¹

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1. Scope

1.1 This specification covers basic characteristics required for porous laminated phenolic materials intended for use as instrument and thin-section ball-bearing retainers (cages) and the methods of determining these characteristics.

1.2 *Forms*—Sheets, rolled tubes, molded tubes, and rods are recommended forms of laminated material covered by this specification.

1.3 *Intended Use*—Materials produced to this specification are intended for use as ball-bearing retainers (cages). Temperature range is limited to 250°F (117°C) and below.

1.4 *Units*—The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

D618 Practice for Conditioning Plastics for Testing

D695 Test Method for Compressive Properties of Rigid Plastics

D792 Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

2.2 ANSI/ASQC Standard:³

ANSI/ASQC Z1.4 Sampling Procedures and Tables for Inspection by Attributes

¹ This test method is under the jurisdiction of ASTM Committee F34 on Rolling Element Bearings and is the direct responsibility of Subcommittee F34.06 on Aerospace.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from American Society for Quality (ASQ), 600 N. Plankinton Ave., Milwaukee, WI 53203, <http://www.asq.org>.

2.3 Federal Standard:⁴

MIL-STD-129 Military Making for Shipment and Storage

3. Classification

3.1 The material shall be furnished in the following types and forms as specified:

Type	Description
FB	Rollled tube made from cotton fabric weighing 4 oz/yd ² (0.14 kg/m ²) or less, with a nominal thread count of 80 by 80 threads per inch (31.5 by 31.5 cm).
FBBW	Rollled tube made from cotton fabric weighing 4 oz/yd ² (0.14 kg/m ²) or less, with a nominal thread count of 100 by 100 threads per inch (39.4 by 39.4 cm).
FBEFW	Rollled tube made from cotton fabric weighing 3 oz/yd ² (0.1 kg/m ²) or less, with a nominal thread count of 130 by 130 threads per inch (51.2 by 51.2 cm).

4. Ordering Information

4.1 Procurement documents should specify the following:

4.1.1 Title, designation, and date of this specification;

4.1.2 Type required (see Section 3); Property values for tubes (see Table 1);

4.1.3 Dimensions required; and

4.1.4 Special marking required (see 9.2).

4.2 Required test data shall be requested at the time the purchase order is submitted and listed on the purchase order.

5. Order of Precedence

5.1 In the event of a conflict between the text of this specification and references cited herein, the text of this specification takes precedence. Nothing in this specification, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

6. Performance Requirements

6.1 Performance requirements for sheet laminated materials shall be as specified in Table 2.

6.2 *Tubes*—The tubes shall consist of base material (reinforcement) as described in 6.3 impregnated and bonded with a non-plasticized phenolic resin. Tubes will be made by passing the impregnated material over heated rolls and winding the

⁴ Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, <http://www.access.gpo.gov>.