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Standard Test Method for Holding Strength of Tack and Prong Fastener Attached Buttons[1]

This standard is issued under the fixed designation D7842/D7842M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers the determination of the holding strength of a tack and prong fastener attached button using a tensile testing machine.

1.2 This test method is applicable to attached buttons in garments or to be attached to fabrics intended for use in apparel (see Annex A1).

1.3 *Units*—The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

1.4 *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]
D76 Specification for Tensile Testing Machines for Textiles
D123 Terminology Relating to Textiles
D1776 Practice for Conditioning and Testing Textiles
2.2 *Federal Document:*[3]
16 CFR Parts 1500.48-1500.53 and 1501.4 Engineering Test Manual for Children's Toys

3. Terminology

3.1 *Definitions:*

3.1.1 *force, n*—a physical influence exerted by one body on another which produces acceleration of bodies that are free to move and deformation of bodies that are not free to move.

3.1.2 *holding strength, n—in buttons*, the force required to separate the button from its attached mating part or separate from the fabric it is attached to, whichever shall fail first.

3.1.3 *tack attached button, n*—any button that is attached by a single post product (most commonly used to attach a non metal colleted button). (See Fig. 1.)

3.1.4 *prong fastener attached button, n*—any button that is attached by a product with 2 or more prongs (most commonly used to attach a metal colleted button). (See Fig. 2.)

3.1.5 For definitions of other textile terms used in this standard, refer to Terminology D123.

4. Summary of Test Method

4.1 A specimen, consisting of a button and tack or prong fastener attached to a fabric, is mounted in a special test fixture on a tensile testing machine. A force is applied perpendicularly until the button separates from the tack or prong fastener, or the fabric

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

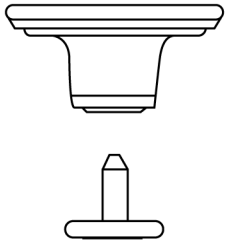

FIG. 1 Tack Attached

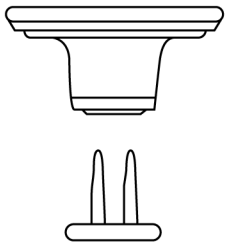

FIG. 2 Prong Fastener Attached

is torn. The peak force at separation is reported as the holding strength. If the fabric tears, the peak force at fabric failure is recorded and the data is reported and considered as a different category to be reported separately from the holding strength of the fasteners.

5. Significance and Use

5.1 This test method may be used for acceptance testing of commercial shipments of garments with attached buttons.

5.2 This test method may be used to determine the compatibility of tack attached buttons or prong fastener attached buttons to fabrics used in apparel. In which case, the buttons are attached to the fabric in the manner in which they will be used and the combined units tested.

6. Apparatus

6.1 *Tensile Testing Machine,* CRE type, meeting Specification D76. (See Fig. 3.)

6.1.1 *Upper Test Fixture,* Fig. 4, designed as not to malform the button specimen with interchangeable bottom plates to test a multitude of sizes of buttons.

FIG. 3 Tensile Test Machine and Clamped Test Specimen