



Designation: D7142 – 05 (Reapproved 2021)

Standard Test Method for Holding Strength of Prong-Ring Attached Snap Fasteners¹

This standard is issued under the fixed designation D7142; 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 prong-ring to the socket or stud of a snap fastener using a tensile testing machine (Option 1) or a manual test stand and force-measuring gage (Option 2).

1.2 This test method is applicable to prong-ring type snap fasteners in garments or to be attached to fabrics intended for use in apparel (see [Annex A1](#)).

1.3 The values stated in either SI units or inch-pound units are to be regarded separately as standard. Within the text, the inch-pound units are shown in parentheses. The values stated in each system are not 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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

[D76/D76M Specification for Tensile Testing Machines for Textiles](#)

[D123 Terminology Relating to Textiles](#)

[D1776/D1776M Practice for Conditioning and Testing Textiles](#)

¹ This test method is under the jurisdiction of ASTM Committee [D13](#) on Textiles and is the direct responsibility of Subcommittee [D13.54](#) on Subassemblies.

Current edition approved July 1, 2021. Published August 2021. Originally approved in 2005. Last previous edition approved in 2016 as D7142 – 05 (2016). DOI: 10.1520/D7142-05R21.

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.

2.2 *Federal Document:*

[16 CFR Parts 1500.48-1500.53 and 1501.4 Engineering Test Manual for Children's Toys](#)³

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 snap fasteners, the force required to separate the prong-ring from its attached mating part (socket or stud).

3.1.2.1 *Discussion*—In this test method, a diametric force is applied which simulates the diametric biting or pinching of a child; however, in practice, the disengaging force used to unsnap a snap fastener is usually applied at the edge of the fastener.

3.1.3 *prong-ring type fastener, n*—generic name for snap fasteners which use a multi-pronged ring to penetrate through fabric to mechanically set a matching socket on one side of a closure and to set a matching stud on the facing closure allowing the outer and inner closure facings to be snapped together. (See [Fig. 1](#).)

3.1.4 *socket, n*—in snap fasteners, the female functional part of the fastener which engages with the stud part of the fastener to form the closure of two parts of the item on which the fastener is used. (See [Fig. 1](#).)

3.1.4.1 *Discussion*—Prong-ring attached socket or stud snap fasteners are designed to be mechanically attached to garments or other items through the deformation interaction of the prong-ring with the socket or stud. Other forms of snap fasteners exist which may be attached to the foundation of the garment or other item by means of sewn threads or adhesive bonding.

3.1.5 *strength, n*—the property of a material that resists deformation induced by external forces.

3.1.5.1 *Discussion*—In this standard, the deformation is the separation of the prong-ring from the socket or stud of a snap fastener.

³ Available from Federal Register, Vol 44, No. 117, June 1979, Consumer Product Commission, 16 CFR Parts 1500 and 1501.