Designation: D 6644 – 01 (Reapproved 2002)

Standard Test Method for Tension Strength of Sew-Through Flange Buttons[1]

This standard is issued under the fixed designation D 6644; 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 measures the resistance of the bridge of a sew-through button to a steadily increasing strain.

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as the 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 nonconformance with the practice.

1.3 *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:*

D 76 Specification for Tensile Testing Machines for Textiles[2]

D 1776 Practice for Conditioning Textiles[2]

D 5497 Terminology Relating to Buttons[3]

3. Terminology

3.1 For button definitions, refer to Terminology D 5497.

4. Summary of Test Method

4.1 The sew-through flange button is sewn onto fabric and positioned in a clamping fixture. The combination is subjected to a strain recorded on a force gauge.

4.2 Tests are made on sew through flange buttons before laundering or dry cleaning with the option of testing again after a predetermined number of launderings or dry cleanings.

5. Significance and Use

5.1 This test measures an important property to users of sew through flange buttons. This is a means of determining the resistance of the bridge of the button to a strain which can cause it to fall off a garment to which it is attached.

5.2 If there are differences of practical significance between the reported test results for two laboratories (or more), comparative tests should be performed to determine if there is a statistical bias between them, using competent statistical assistance. As a minimum, test samples should be used that are as homogeneous as possible, that are drawn from the material from which the disparate test results were obtained, and that are randomly assigned in equal numbers to each laboratory for testing, Other materials with established test values may be used for this purpose. The test results for the two laboratories should be compared using a statistical test for unpaired data, at a probability level chosen prior to the testing series. If a bias is found, either its cause must be found and corrected, or future test results must be adjusted in consideration of the known bias.

6. Apparatus

6.1 *Force Gauge*—One capable of measuring 20 kg (44 lbs) of tension or compression with an accuracy of ± 0.1 kg (± 0.22 lbs). The gauge may be hand held or specially mounted.

6.2 *Testing Machine*—A constant rate of extension (CRE) Tester shall be used. The capacity of the machine must be selected for the break position on the gauge to fall within 20-90 % of full scale.

6.3 *Jaw Clamping Fixture*—One capable of firmly holding the button, such as a long nose locking wrench or a 3-pronged clamping device.

6.4 *Commercial Sewing Machine*—One capable of automatically sewing the button to. two or more layers of fabric.

7. Sampling

7.1 *Laboratory Sample*—Randomly select quantity of buttons, approximately 100-200, from the same carton and from boxes within that carton that adequately represent the material from which test specimens may be chosen.

7.2 *Test Specimens*—Randomly select 15-25 buttons from the laboratory sample for testing, if test specimens are submitted for preproduction approval, testing 15 buttons is acceptable.

8. Conditioning

8.1 Condition the specimens as directed in practice D 618 using procedure E. Following conditioning prepare the specimens as instructed in 9.4 of practice D 618. Preconditioning is not required.

[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.
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[2] *Annual Book of ASTM Standards,* Vol 07.01.

[3] *Annual Book of ASTM Standards,* Vol 07.02.