



# Standard Test Method for Resistance to Slippage of Yarns in Woven Fabrics Using a Standard Seam<sup>1</sup>

This standard is issued under the fixed designation D 434; 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.

*This standard has been approved for use by agencies of the Department of Defense.*

## 1. Scope

1.1 This test method covers the determination of the resistance to slippage of filling yarns over warp yarns, or warp yarns over filling yarns, using a standard seam.

1.2 The test method is not intended for upholstery fabrics.

## 2. Referenced Documents

### 2.1 ASTM Standards:

D 76 Specification for Tensile Testing Machines for Textiles<sup>2</sup>

D 123 Terminology Relating to Textiles<sup>2</sup>

D 1682 Test Methods for Breaking Load and Elongation of Textile Fabrics<sup>2</sup>

D 1776 Practice for Conditioning Textiles for Testing<sup>2</sup>

D 1905 Test Method for Dimensional Changes in Laundering of Woven or Knitted Textiles<sup>3</sup>

D 2721 Test Method for Effects of Drycleaning on Permanence of Durable Water-Repellent Finish<sup>2</sup>

### 2.2 Federal Standard:

751a Stitch Seam and Stitching<sup>4</sup>

## 3. Terminology

### 3.1 Definitions:

3.1.1 *resistance to yarn slippage n.*—the force required to separate the parts of a standard seam assembly by a specified amount.

3.2 For definitions of other textile terms used in this method, refer to Terminology D 123.

## 4. Summary of Test Method

4.1 The load-elongation curve of the fabric is superimposed over a load-elongation curve of the same fabric with a standard seam sewn parallel to the yarns being tested. Resistance to yarn

slippage is reported as the load at which a slippage of a specified size is seen.

## 5. Significance and Use

5.1 This method is considered satisfactory for acceptance testing because the method has been used extensively in the trade for acceptance testing. In case of disagreement arising from differences in values reported by the purchaser and the seller when using this test method for acceptance testing, the statistical bias, if any, between the laboratory of the purchaser and the laboratory of the seller should be determined with each comparison being based on testing specimens randomly drawn from one sample of material of the type being evaluated.

5.2 This test method is used as an indication of the tendency of yarns to slip at a seam. Such slippage results in garment failure at a seam, which is not readily repairable by reseaming.

5.3 The force at which the load-elongation curve of the fabric with the seam is a predetermined distance greater than the load-elongation curve of the fabric without a seam is reported as the pounds-force per inch (newtons per metre) resistance to yarn slippage. Generally, a ¼-in. (6.4-mm) separation is used, but for some fabrics a smaller opening is preferred. If desired, the force to affect complete separation may be obtained by continuing the load-elongation curve until complete separation is obtained. A 1-lbf (4.45-N) compensation is deducted to allow for elongation of the seam.

5.4 Currently interlaboratory tests are being made to determine accuracy and precision. This method can also be used to evaluate the correlation between the CRE and CRI testing machines.

## 6. Apparatus

6.1 *Tensile Testing Machine (CRT) (Preferred)*—CRT (pendulum) type with an autographic recorder conforming to the requirements of Method D 76. The machine shall be equipped with clamps having frontjaws 1 in. (25 mm) in width and backjaws 2 in. (50 mm) or more in width, except as otherwise provided. The clamps shall be set in 3 in. (8.0 mm) apart. The speed of the lower clamp shall be  $12 \pm \frac{1}{2}$  in. ( $300 \pm 10$  mm)/min.

NOTE 1—In comparing results with those from another laboratory, both

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<sup>2</sup> *Annual Book of ASTM Standards*, Vols 07.01.

<sup>3</sup> Discontinued—See 1977 *Annual Book of ASTM Standards*, Part 32.

<sup>4</sup> Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.