



Designation: D7506/D7506M – 17

## Standard Test Method for Pocket Reinforcement<sup>1</sup>

This standard is issued under the fixed designation D7506/D7506M; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This test method utilizes the grab procedures to determine localized weakness due to bar-tacking in the pocket areas of all types of garments. This can be utilized to test bar-tacking in the pockets of shirts, as well as side or back pockets of trousers, pants, or jeans.

1.2 This test method provides the values in both inch-pound and SI units. Inch-pound units is the technically correct name for the customary units used in the United States. SI units is the technically correct name for the system of metric units known as the International System of Units. The values stated in either acceptable metric units or in other units shall be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system must be used independently of the other, without combining in any way.

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.*

1.4 *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:*<sup>2</sup>

D76 Specification for Tensile Testing Machines for Textiles

D123 Terminology Relating to Textiles

D1776 Practice for Conditioning and Testing Textiles

D5034 Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)

<sup>1</sup> 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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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

### 3. Terminology

#### 3.1 Definitions

3.1.1 *constant-rate-of-extension tensile testing machine (CRE), n*—a testing machine in which the rate of increase of specimen length is uniform with time.

3.1.2 *grab test, n—in fabric testing*, a tensile test in which the central part of the width of the specimen is gripped in the clamps.

3.1.3 *tensile test, n—in textiles*, a test in which a textile material is stretched in one direction to determine the load elongation characteristics, in the breaking load, or the breaking elongation.

3.1.4 For definitions of other terms used in this test method, refer to Terminology D123.

### 4. Summary of Test Method

4.1 A specimen of the pocket area with the bar-tacking is mounted centrally in clamps of the tensile strength machine and a force is applied until the specimen breaks.

### 5. Apparatus

5.1 *Constant-rate-of-extension (CRE) tensile testing machine*, as used in Test Method D5034, conforming to Specification D76.

5.2 *Clamps and jaws, rubber faced or other gripping surface*—jaw faces must measure  $25 \pm 1$  mm ( $1.0 \pm 0.02$  in.) wide at least 25 mm (1.0 in.), perpendicular to the direction of the force, and not less than 25 nor more than 50 mm (1.0 nor more than 2.0 in.). The back, or bottom, jaw face of each clamp shall be at least as large as its mate. Use of a larger face for the second jaw reduces the problem of front and back jaw face misalignment.

### 6. Safety Precautions

6.1 It is the users responsibility to use safe and proper techniques when handling or using any of the equipment mentioned.

6.2 Good laboratory practice should be followed. Wear safety glasses in all laboratory test rooms.

## 7. Sampling, Test Specimens, and Test Units

7.1 Cut the garment or the side pockets as shown in Figs. 1-4. If multiple samples are available, cut, if possible, a minimum of 3 specimens. If not, test an agreed upon number of samples.

## 8. Preparation of Apparatus

### 8.1 Tensile Testing Machine:

8.1.1 Prepare the machine according to the manufacturer's instructions.

8.1.2 Set the distance between the clamps at  $75 \pm 1$  mm ( $3.0 \pm 0.02$  in.) at the crosshead speed set at 305 mm/min (12 in./min).

8.1.3 Select the force range of the testing machine for the break to occur between 10% and 90% of the full-scale force. Calibrate or verify the testing machine for this range.

### 8.2 Clamping System:

8.2.1 Check the jaw face surfaces for flatness and parallelism.

8.2.2 Make a four-ply sandwich or white tissue paper, two soft carbon papers placed back to back, and a second white paper (or fold the paper over the two carbons).

8.2.3 Mount the paper-carbon sandwich and examine the jaw face imprint of uniformity of the carbon deposition on the tissue paper.

8.2.4 If the imprint is incomplete or off-size, make appropriate adjustments of the clamping gripping system and re-check the clamping system with a paper and carbon sandwich.

NOTE 1—Some sources of clamping irregularities are surface contact, metal surface, or jaw coating over surface, condition and pressure application.

### 8.3 Verification of the Total Operating System:

8.3.1 Verify the total operating system (loading, extension, clamping, and recording or data collection) by testing specimens of standard fabrics for breaking force and compare to the data with that given for the standard fabric. Prepare, test and compare the data given from the tested fabric to the given data known for the standard test.



FIG. 1 Cutting: Patch Pocket



FIG. 2 Cutting: Patch Pocket



FIG. 3 Cutting: Side Pocket



FIG. 4 Cutting: Side Pocket

## 9. Conditioning

9.1 Condition garments for a minimum of 4 h prior to testing at  $70 \pm 2^\circ\text{F}$  and  $65\% \pm 2$  RH. As outlined in Practice D1776. Equilibrium is considered to have been reached when the mass of the specimen in successive weighing made at intervals of not less than 2 h does not exceed 0.1% of the mass of the specimen.

## 10. Procedure

### 10.1 Patch pocket:

10.1.1 Mount the area to be tested as shown in Fig. 5 and Fig. 6. The bar-tack area should be midway between top and bottom clamps and centered vertically. The bar-tack must also be perpendicular to the direction of force applied.

10.1.2 Activate the cross-head and record the ultimate breaking strength.

#### 10.2 Side pocket:

10.2.1 Mount the area to be tested as shown in Fig. 7 and Fig. 8. The bar-tack area should be midway between top and bottom clamps and centered vertically. The bar-tack must also be perpendicular to the direction of force applied.

### 11. Report

11.1 Report tensile results of the area tested.

11.2 Report the mode of failure; for example, seam failure or fabric failure or sewing thread failure.

11.3 Report where the break occurs; at the jaw (jaw break) or at the pocket seam.

### 12. Keywords

12.1 breaking strength; pocket reinforcement; tensile strength

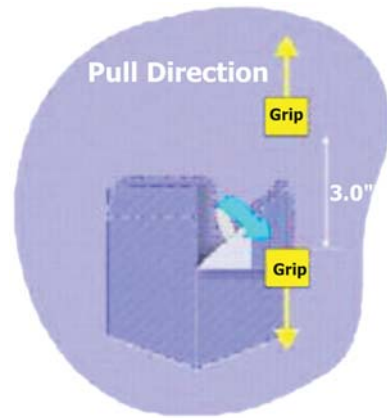


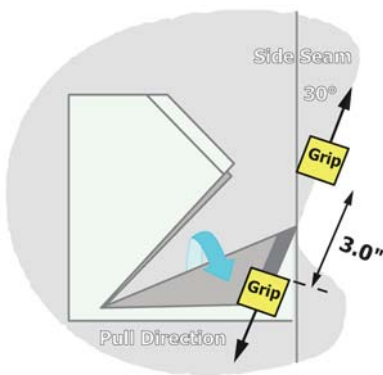
FIG. 6 Pocket Stress Pulling Strength – Patch Pocket



FIG. 5 Mounting: Patch Pocket



FIG. 7 Mounting: Side Pocket



**FIG. 8 Pocket Stress Pulling Strength – Side Pocket**

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