

Test Method for Seam Twist in Garments Before and After Home Laundering

Developed in 2017 by AATCC Committee RA42; revised 2019.

Foreword

A preliminary version of this test method was published as TS-004 in the 2004 AATCC/ASTM International (Committee D13) *Concept 2 Consumer Technical Supplement*. It is now being published as a standard test method under the jurisdiction of AATCC Research Committee RA42, Dimensional Changes Test Methods.

Seam twist in garments may be influenced by the direction of the fabric in garment panels, the manner of garment assembly, as well as skewness change of the fabric.

AATCC TM207 is for evaluation of seam twist *before and after* home laundering. AATCC TM179, Skew Change of Fabrics After Home Laundering, is used to evaluate the *change* in fabric skew *after* home laundering. ASTM D3882, Standard Test Method for Bow and Skew of Woven and Knitted Fabrics is only used to evaluate fabric skew in its original state (*before* laundering). The relationship among results of these methods is unknown; results of one method should not be compared to those of another method.

1. Purpose and Scope

1.1 This test method determines the seam twist of garments before, as well as after, home laundering.

1.2 This test procedure is specifically intended for garments with vertical seams, such as tops and pants, but may be applied to other end products such as curtains, drapes, or pillowcases. The method is applicable to garments constructed from knitted and/or woven textiles suitable for home laundering.

2. Principle

2.1 Displacement of seams from their locations along natural folds is measured before and after laundering. Seam twist is calculated as a percentage of original seam length. A value close to zero indicates little or no twist; a higher value indicates greater twist; the calculations in this method do not produce negative twist values.

3. Referenced Documents

- 3.1 AATCC LP1, Home Laundering: Machine Washing (see 16.1).
- 3.2 AATCC LP2, Home Laundering: Hand Washing (see 16.1).
- 3.3 AATCC TM133, Colorfastness to Heat: Hot Pressing (see 16.1).
- 3.4 AATCC TM143, Appearance of Apparel and Other Textile End Products after Home Laundering (see 16.1).
- 3.5 AATCC TM150, Dimensional Changes of Garments after Home Laundering (see 16.1).
- 3.6 AATCC TM179, Skew Change of Fabrics After Home Laundering (see 16.1).
- 3.7 ASTM D123, Standard Terminology Relating to Textiles (see 16.2).
- 3.8 ASTM D1776, Standard Practice for Conditioning and Testing Textiles (see 16.2).
- 3.9 ASTM D3882, Standard Test Method for Bow and Skew of Woven and Knitted Fabrics (see 16.2).
- 3.10 ISO 6330, Textiles—Domestic washing and drying procedures for textile testing (see 16.3).

4. Terminology

4.1 **laundering**, *n.*—of textile materials, a process intended to remove soils and/or stains by treatment (washing) with an aqueous detergent solution and normally including rinsing, extraction and drying.

4.2 **seam twist**, *n.*—a rotation, usually lateral, between different panels of a garment connected by a seam.

NOTE: Seam twist may also be referred to as twist, torque or spirality.

5. Safety Precautions

NOTE: These safety precautions are for information purposes only. The precautions are ancillary to the testing procedures and are not intended to be all inclusive. It is the user's responsibility to use safe and proper techniques in handling materials in this test method. Manufacturers MUST be consulted for specific details such as material safety data sheets and other manufacturer's recommendations. All OSHA standards and rules must also be consulted and followed.

5.1 Good laboratory practices should be followed. Wear safety glasses in all laboratory areas.

5.2 Detergent may cause irritation.

Care should be taken to prevent exposure to skin and eyes.

5.3 Manufacturer's safety recommendations should be followed when operating laboratory testing equipment.

6. Uses and Limitations

6.1 This method is applicable to vertical seams aligned with the side folds of a garment when laid on a flat surface. The folds are used as a reference for seam displacement measurements. The side seams of most garments, and inseams of pants, are typically evaluated.

6.2 This test method is applicable to seams oriented with the vertical direction, regardless of location (e.g., side seams, center seams, inseams, etc.) It is not applicable to seams not oriented with the vertical direction, such as curved seams.

6.3 Seam length, fabric construction, and garment assembly, individually or in combination, influence seam twist. Results obtained from matching seams, with identical seam constructional details (i.e. stitch type, seam shape, stitches/inch, etc.) as, for example, from the left and right sides of an item, may be averaged. However, results obtained from seams with different seam constructional details, even within the same garment, should not be compared, or averaged.

6.4 Different laundering temperatures, machine specifications or load sizes may result in different seam twist results. Use caution in comparing results obtained using different testing parameters.

7. Apparatus and Materials (see 16.4)

7.1 Conditioning facilities to accommodate hanging garments and/or conditioning/drying racks with pull-out, perforated shelves for laying garments flat (see 16.1).

7.2 Indelible ink marking pen (see 16.1).

7.3 Tape or rule marked in millimeters, eighths, or tenths of an inch.

7.4 Standard washing machine (see Table I and 16.5).

7.5 AATCC 1993 Standard Reference Detergent (powder, with brightener) (see 16.1).

7.6 Balance with at least 5.0 kg (10.0 lb) capacity.

7.7 Laundering ballast, Type 1 or Type 3 (see Table IV).

7.8 Standard tumble dryer (see Table

III and 16.5), or facilities for drip/line drying.

8. Test Specimens

8.1 Consider individual items as specimens. When available, test three specimens per manufacturing lot.

8.2 The specimens tested by this method may also be tested at the same time for appearance and/or dimensional change in accordance with AATCC TM143, AATCC TM150, and/or AATCC TM179.

9. Conditioning

9.1 Prior to testing, condition test specimens as directed in ASTM D1776. Use conditions indicated in Table 1 for Textiles, general and conditioning time as indicated in Table 2 for the appropriate fiber content.

9.1.1 Lay specimens flat, separately, on a screen or perforated shelf of a conditioning rack. For garments normally stored hung, hang separately on hangers to condition. Allow space for air movement on all sides of the specimens.

9.2 Specimens will be conditioned again after laundering.

10. Measurement before Laundering

10.1 Determine the seam(s) to evaluate for twist (see 6.1). Evaluation of all vertical seams is recommended to get a complete picture of garment appearance.

10.2 After conditioning, lay one test specimen on a flat, smooth, horizontal surface in its natural configuration. Arrange specimen so the first seam to be measured is visible (if the seam has twisted to the back of the specimen, lay the specimen face down). It may be helpful to gently shake the specimen to allow it to hang loosely, but do not stretch or distort the specimen in shaking. Smooth, but do not stretch, all panels, including seams and hems.

10.3 Mark Point *A* at the lower edge of the seam, including hem. Mark Point *B* 25 mm (1 in.) below the point at which the seam intersects another seam. For example, mark Point *B* of pant inseam 25 mm below intersection with rise seam; mark Point *B* of shirt side seam 25 mm below intersection with armhole (see Figs. 1 and 2).

10.4 Measure and record seam length *AB* to the nearest millimeter, or eighth or tenth of an inch.

10.5 Determine if seam twist exists before laundering.

10.5.1 If the seam falls along the natural fold of the garment, there is no seam twist (see Figs. 1 and 2). Record original twist distance as 0 mm or 0.0 in.

10.5.2 If the seam does *not* fall along the natural fold of the garment, mark

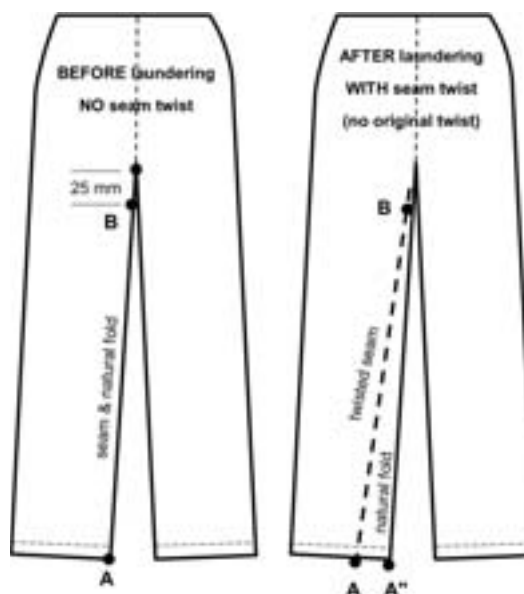


Fig. 1—Pants, before and after laundering, no original seam twist. Garment has no seam twist before laundering; length *AB* coincides with both seam and natural fold. Garment after laundering has side seam twist (in practice, it is likely that vertical seams in other locations of the same garment will also exhibit twist).

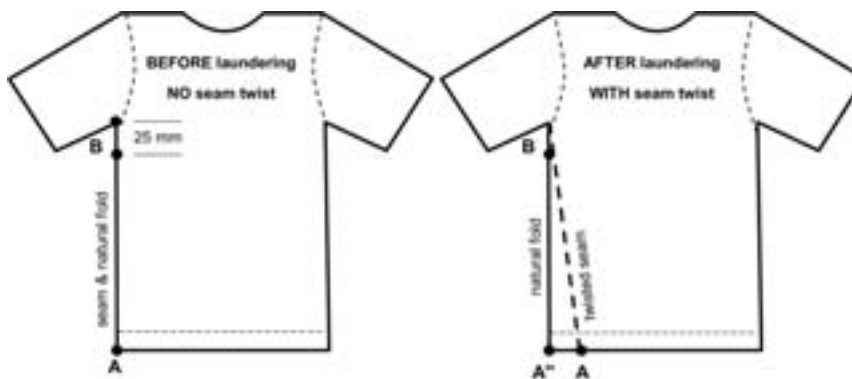


Fig. 2—Shirts, before and after laundering, no original seam twist. Garment has no seam twist before laundering; length *AB* coincides with both seam and natural fold. Garment after laundering has side seam twist (in practice, it is likely that vertical seams in other locations of the same garment will also exhibit twist).

Point *A'* at the lower edge of the natural fold, including hem (see Figs. 3 and 4).

10.5.3 Measure and record original twist distance *AA'* for each seam to the nearest millimeter, or eighth or tenth of an inch.

10.6 Repeat 10.2 through 10.5 for remaining seams on all specimens.

11. Laundering Procedure

11.1 Washing.

11.1.1 Select washing conditions for testing from Table I. Set washing ma-

chine controls to generate the selected cycle parameters.

11.1.2 Load for laundering shall consist of all specimens in the sample, plus enough laundering ballast pieces to make a total load weight of 1.8 ± 0.1 kg (4.0 ± 0.2 lb).

11.1.3 Begin selected wash cycle. Allow machine to fill to specified water level.

11.1.4 Add 66 ± 1 g of AATCC 1993 Standard Reference Detergent to washing machine as directed by washing machine manufacturer's instructions. If detergent