



Standard Test Method for Strength of Sewn or Bonded Seams of Geotextiles¹

This standard is issued under the fixed designation D4884/D4884M; 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 seam strength of geotextiles, using a wide specimen.

1.2 The long term performance of a seaming technique is not addressed by this test method. This test method will provide data to indicate the short term seam strength that can be achieved for each particular geotextile and seam assembly construction. To assess the long term performance of a seaming technique, it is possible to use Practice D6389, using this test method to determine the anticipated strength reduction in the initial, short term wide-width tensile strength (Test Method D4595) results.

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

2. Referenced Documents

2.1 ASTM Standards:²

D76/D76M Specification for Tensile Testing Machines for Textiles

D1776 Practice for Conditioning and Testing Textiles

D1777 Test Method for Thickness of Textile Materials

D4439 Terminology for Geosynthetics

D4595 Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method

¹ This test method is under the jurisdiction of ASTM Committee D35 on Geosynthetics and is the direct responsibility of Subcommittee D35.01 on Mechanical Properties.

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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.

D6389 Practice for Tests to Evaluate the Chemical Resistance of Geotextiles to Liquids

E178 Practice for Dealing With Outlying Observations

E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

2.2 *Federal Standard*.³

Fed. Std. No. 751a Stitches, Seams, and Stitchings

3. Terminology

3.1 Definitions:

3.1.1 *adhered seam, n*—in geotextiles, a seam made by the application of an adhesive.

3.1.2 *cross-machine direction*—the direction in the plane of the geotextile perpendicular to the direction of manufacture.

3.1.3 *geotextile, n*—a permeable geosynthetic comprised solely of textiles.

3.1.4 *linear density, n*—mass per unit length; the quotient obtained by dividing the mass of a fiber or yarn by its length.

3.1.5 *machine direction*—the direction in the plane of the geotextile parallel to the direction of manufacture.

3.1.6 *seam allowance, n*—the width of geotextile used in making a seam assembly, for sewn seams bounded by the edge of the geotextile and the furthest stitch line, and for thermally bonded seams bounded by the edge of the geotextile and the furthest seam edge.

3.1.6.1 *Discussion*—In geotextiles, the distance from the selvage or turned edge of the geotextile to the edge of the seam.

3.1.7 *seam assembly, n*—the unit obtained by joining geotextile with a seam, including details such as geotextile direction(s), seam allowance, seam width, seam type, speed, and if sewn—sewing threads used and number of stitches per unit length, needle type and size, and if adhered—adhesive used, amount of adhesive in weight per unit area, overlap dimension and one or both sides with adhesive applied and so forth.

3.1.8 *seam design engineering, n*—the procedures used to select a specific thread, a specific stitch type, and a specific seam type to achieve the required seam strength of a sewn seam and the procedures used to select a specific seam width,

³ Available from DLA Document Services, Building 4/D, 700 Robbins Ave., Philadelphia, PA 19111-5094, <http://quicksearch.dla.mil>.