



Designation: D7179 – 18

Standard Test Method for Determining Geonet Breaking Force¹

This standard is issued under the fixed designation D7179; 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 is used to measure the breaking force of a geonet.

1.2 This test is applicable for manufacturing quality control (MQC) and construction quality assurance (CQA) testing, and is not recommended as a performance test.

1.3 The values stated in SI units are to be regarded as standard. The values given in parentheses are for information only.

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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *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:*²
- D76/D76M Specification for Tensile Testing Machines for Textiles
 - D4354 Practice for Sampling of Geosynthetics and Rolled Erosion Control Products (RECPs) for Testing
 - D4439 Terminology for Geosynthetics

3. Terminology

3.1 Definitions:

3.1.1 Definitions of terms applying to this test method appear in Terminology D4439.

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.

3.1.2 *atmosphere for testing geosynthetics, n*—air maintained at a relative humidity between 50 to 70 % and a temperature of 21 ± 2 °C (70 ± 4 °F).

3.1.3 *geonet, n*—a geosynthetic consisting of integrally connected parallel sets of ribs overlying similar sets at various angles for planar drainage of liquids or gases.

3.1.4 *index test, n*—a test procedure which may contain a known bias but which may be used to establish an order for a set of specimens with respect to the property of interest.

3.1.5 *peak load, n*—maximum force recorded during a tensile test.

4. Summary of Test Method

4.1 Geonet specimens are mounted between full-width grips in a load frame. Tensile load is applied longitudinally to the specimen at a constant rate of crosshead movement. The test is carried to rupture and a maximum breaking force of each specimen is recorded.

5. Significance and Use

5.1 This method evaluates tensile breaking force of geonets for the purposes of quality control and quality assurance. Testing is performed parallel to the machine direction only, for that is the primary direction that geonets witness tensile loading. This method is an index test and is not intended for design purposes.

6. Apparatus

6.1 *Tensile Testing Machine*—Constant rate of extension (CRE) equipment meeting the requirements of Specification D76/D76M. The load cell shall be accurate to within ± 1 % of the applied force. The drive mechanism shall be able to control the rate of extension to within ± 1 % of the targeted rate.

6.2 *Grips*—One of the grips must be self-aligning to compensate for uneven distribution of force across the specimen. The clamping force and the clamp surfaces shall hold the specimen firmly without causing damage. The clamps shall be capable of gripping a 100-mm (4-in.) by 25-mm (1-in.) area at a minimum.

6.3 *Recording Mechanism*—The testing machine shall be equipped with equipment capable of producing a hard copy of