



Designation: D4632/D4632M – 15a (Reapproved 2023)

Standard Test Method for Grab Breaking Load and Elongation of Geotextiles¹

This standard is issued under the fixed designation D4632/D4632M; 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 U.S. Department of Defense.

1. Scope

1.1 This test method is an index test which provides a procedure for determining the breaking load (grab strength) and elongation (grab elongation) of geotextiles using the grab method. This test method is not suitable for knitted fabrics and alternate test methods should be used. While useful for quality control and acceptance testing for a specific fabric structure, the results can only be used comparatively between fabrics with very similar structures because each different fabric structure performs in a unique and characteristic manner in this test. The grab test method does not provide all the information needed for all design applications and other test methods should be used.

1.2 Procedures for measuring the breaking load and elongation by the grab method in both the dry and wet state are included; however, testing is normally done in the dry condition unless specified otherwise in an agreement or specification.

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 are not necessarily exact equivalents; therefore, to ensure conformance with the standard, each system shall be used independently of the other, and values from the two systems shall not be combined.

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.*

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. Referenced Documents

2.1 ASTM Standards:²

D76/D76M Specification for Tensile Testing Machines for Textiles

D123 Terminology Relating to Textiles

D1776/D1776M Practice for Conditioning and Testing Textiles

D2905 Practice for Statements on Number of Specimens for Textiles (Withdrawn 2008)³

D4354 Practice for Sampling of Geosynthetics and Rolled Erosion Control Products (RECPs) for Testing

D4439 Terminology for Geosynthetics

E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods

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

3. Terminology

3.1 Definitions:

3.1.1 *atmosphere for testing geotextiles, n*—air maintained at a relative humidity of $65 \pm 5\%$ relative humidity and temperature of $21 \pm 2^\circ\text{C}$ [$70 \pm 4^\circ\text{F}$].

3.1.2 *breaking load, n*—the maximum force applied to a specimen in a tensile test carried to rupture.

3.1.3 *cross-machine direction, n*—the direction in the plane of the fabric perpendicular to the direction of manufacture.

3.1.4 *elongation at break, n*—the elongation corresponding to the breaking load, that is, the maximum load.

3.1.5 *geotextile, n*—any permeable textile material used with foundation, soil, rock, earth, or any other geotechnical material, as an integral part of a man-made product, structure, or system.

3.1.6 *grab test, n—in fabric testing*, a tension test in which only a part of the width of the specimen is gripped in the clamps.

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 The last approved version of this historical standard is referenced on www.astm.org.