



Designation: D3786/D3786M – 18 (Reapproved 2023)

Standard Test Method for Bursting Strength of Textile Fabrics—Diaphragm Bursting Strength Tester Method¹

This standard is issued under the fixed designation D3786/D3786M; 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 describes the measurement of the resistance of textile fabrics to bursting using a hydraulic or pneumatic diaphragm bursting tester. This test method is generally applicable to a wide variety of textile products.

1.2 This test method may also be applicable for stretch woven and woven industrial fabrics such as inflatable restraints. As new materials that may exceed the range of the instrument are developed, please refer to the reporting section and consider using Test Methods [D3787](#) or [D6797](#) instead.

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.

NOTE 1—For the measurement of the bursting strength by means of a ball burst mechanism, refer to Test Method [D3787](#).

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 [D13](#) on Textiles and is the direct responsibility of Subcommittee [D13.59](#) on Fabric Physical Test Methods A.

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2. Referenced Documents

2.1 ASTM Standards:²

[D123](#) Terminology Relating to Textiles

[D1776/D1776M](#) Practice for Conditioning and Testing Textiles

[D3787](#) Test Method for Bursting Strength of Textiles—Constant-Rate-of-Traverse (CRT) Ball Burst Test

[D4850](#) Terminology Relating to Fabrics and Fabric Test Methods

[D6797](#) Test Method for Bursting Strength of Fabrics Constant-Rate-of-Extension (CRE) Ball Burst Test

2.2 Other Standard:

[TAPPI Method T 403](#), Bursting Strength of Paper³

3. Terminology

3.1 For all terminology related to [D13.59](#), Fabric Test Methods, see Terminology [D4850](#).

3.1.1 The following terms are relevant to this standard: bursting strength, knitted fabric, nonwoven fabric, stretch woven fabric, woven fabric.

3.2 For all other terminology related to textiles, see Terminology [D123](#).

4. Summary of Test Method

4.1 A specimen is clamped over an expandable diaphragm. The diaphragm is expanded by fluid pressure to the point of specimen rupture. The difference between the total pressure required to rupture the specimen and the pressure required to inflate the diaphragm is reported as the bursting strength.

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 Available from Technological Association of the Pulp and Paper Industry (TAPPI), 15 Technology Parkway South, Suite 115, Peachtree Corners, GA 30092, <http://www.tappi.org>.