



Designation: D5822 – 13 (Reapproved 2019)

Standard Test Method for Determining Seam Strength in Inflatable Restraint Cushions¹

This standard is issued under the fixed designation D5822; 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 measurement of seam efficiency and the maximum seam strength in inflatable restraint cushions composed of woven fabrics when a force is applied perpendicular to the seam, using a grab test. For evaluating sewing thread, refer to Test Method [D204](#).

1.2 This test method is restricted to seams that are either obtained from an inflatable restraint cushion or prepared off-line, specifically for testing, using fabric blanks, not obtained from a previously sewn cushion assembly. Seams may include but are not limited to sewn, OPW, glued, sealed and sewn, or fused (chemically or thermally). This test method can be used for either lot testing of production cushions, or for research and development purposes.

1.3 This test method is used when the measurement of a resistance to a specified force, a breaking force, a minimum elongation, or a combination thereof are required to determine the seam strength, or seam integrity of a particular fabric for inflatable restraint use.

1.4 Procedures and apparatus other than those stated in this standard may be used by agreement between purchaser and supplier with the specific deviations from the standard acknowledged in the report.

1.5 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 exact equivalents; therefore, each system must be used independently of the other.

1.6 *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.*

1.7 *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

[D123 Terminology Relating to Textiles](#)

[D204 Test Methods for Sewing Threads](#)

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

[D6799 Terminology Relating to Inflatable Restraints](#)

3. Terminology

3.1 For all terminology relating to D13.20, Inflatable restraints, refer to Terminology [D6799](#).

3.1.1 The following terms are relevant to this standard: seam efficiency, seam failure, seam strength.

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

4. Summary of Test Method

4.1 Specimens either taken from inflatable restraint cushions or made off-line using fabric blanks, specifically for testing, are destructively tested in a tensile testing machine under laboratory conditions to determine seam strength and seam efficiency and nature of the failure mode.

5. Significance and Use

5.1 Seam strength testing is used for design validation and for lot acceptance.

5.2 This test method constitutes the conditions, procedures, and equipment by which either seams taken from inflatable restraint cushions, or seam types that can potentially be used for inflatable restraint cushions are tested for seam strength, seam efficiency, and failure mode. It is intended to be used as a guideline in establishing a written part specification or print. The specification or agreement of purchaser and supplier may deviate from the procedures described herein when (based on

¹ This test method is under the jurisdiction of ASTM Committee [D13](#) on Textiles and is the direct responsibility of Subcommittee [D13.20](#) on Inflatable Restraints.

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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.