



Designation: D6770 – 24

Standard Test Method for Abrasion Resistance of Textile Webbing (Hex Bar Method)¹

This standard is issued under the fixed designation D6770; 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 abrasion resistance of textile webbing using a hex bar abrasion tester.

1.1.1 The resistance is expressed as a percentage of retained breaking force.

1.2 The values stated in SI units are to be regarded as standard. The values given in parentheses after SI units are provided for information only and are not considered standard.

1.3 *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.*

1.4 *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

D1776/D1776M Practice for Conditioning and Testing Textiles

D4850 Terminology Relating to Fabrics and Fabric Test Methods

D6775 Test Method for Breaking Strength and Elongation of Textile Webbing, Tape and Braided Material

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

¹ This test method is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.60 on Fabric Physical Test Methods B.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

2.2 *Other Standard:*³

Federal Standard 191A, Method 5309 “Abrasion Resistance of Textile Webbing”(inactive)

3. Terminology

3.1 For all terminology relating to Fabrics, refer to Terminology D4850.

3.2 For all other terminology related to textiles, refer to Terminology D123.

4. Summary of Test Method

4.1 Abrasion resistance is measured by subjecting the specimen to reciprocating rubbing over a hex bar under specified conditions of applied load, stroke length and time. Resistance to abrasion is evaluated by determining the percent retention of breaking force of an abraded specimen compared to an unabraded specimen.

5. Significance and Use

5.1 The measurement of the resistance to abrasion of textile webbing is very complex. The resistance to abrasion is affected by many factors that include the inherent mechanical properties of the fibers; the dimensions of the fibers; the structure of the yarns; the construction of the webbing; the type, kind, and amount of treatment added to the fibers, yarns, or webbing; the nature of the abradant; the variable action of the abradant over the specimen area abraded; the tension on the specimen; the pressure between the specimen and the abradant; and the dimensional changes in the specimen.

5.2 The resistance of textile webbing to abrasion as measured by this test method does not include all the factors which account for wear performance or durability in actual use. While the abrasion resistance stated in terms of the number of cycles and durability (defined as the ability to withstand deterioration or wearing out in use, including the effects of abrasion) are frequently related, the relationship varies with different end uses. Different factors may be necessary in any calculation of predicted durability from specific abrasion data.

5.3 Laboratory tests may be reliable as an indication of relative end use in cases where the difference in abrasion

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

*A Summary of Changes section appears at the end of this standard