



Designation: D3774 – 18 (Reapproved 2024)

Standard Test Method for Width of Textile Fabric¹

This standard is issued under the fixed designation D3774; 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 covers the measurement of the width of woven or knitted fabrics, usable width, or both. The method is applicable to full rolls, bolts of fabric, and short specimens removed from a roll or bolt. Unless otherwise specified, measurements shall include the selvages when present.

1.2 The method offers two options:

1.2.1 *Option A—Full Roll or Bolt.*

1.2.2 *Option B—Short Specimen Removed from Full Roll or Bolt.*

1.3 The values stated in either SI units or U.S. customary units are to be regarded as standard. The U.S. customary units may be approximate.

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

D123 Terminology Relating to Textiles

D1776/D1776M Practice for Conditioning and Testing Textiles

D4850 Terminology Relating to Fabrics and Fabric 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:*

ANSI/ASQC Z1.4—Inspection by Attributes³

3. Terminology

3.1 The following terms are relevant to this standard: raised-surface width; usable width; width of a circular-knitted fabric, *when measured as a tubular structure*; width of a circular-knitted fabric, *when tubular structure has been slit*; width, *of a fabric*; width, *of a fabric woven on a shuttleless loom*.

3.2 For terminology related to Fabric Test Methods, see Terminology **D4850**.

3.3 For definitions of all other textile terms see Terminology **D123**.

4. Summary of Test Method

4.1 The width of the fabric is measured directly by using a metal rule.

4.2 Option A offers two procedures for the measurement of fabric width in full rolls or bolts. Raised (pile or napped) surface width or usable width may be measured in addition to, or in place of, the full width. The first procedure is a tension-free method; the second procedure provides for measurements made during finishing or inspection operations that may impart tension to the fabric.

4.3 Option B covers the measurement of fabric width when only a short length of fabric is available. Raised (pile or napped) surface width or usable width may be measured in addition to, or in place of, the full width.

5. Significance and Use

5.1 Option A procedures of Test Method D3774 for width are considered satisfactory for acceptance testing of commercial shipments because they are used extensively in the trade.

5.1.1 In case of a dispute arising from differences in reported test values when using Test Method D3774 for acceptance testing of commercial shipments, the purchaser and the supplier should conduct comparative tests to determine if

³ Available from American National Standards Institute (ANSI), 1180 Avenue of the Americas, 10th Floor, New York, NY 10036, <http://www.ansi.org>.

there is a statistical bias between their laboratories. Competent statistical assistance is recommended for the investigation of bias. As a minimum, the two parties should take a group of test specimens which are as homogeneous as possible and which are from a lot of material of the type in question. The test specimens should then be randomly assigned in equal numbers to each laboratory for testing. The average results from the two laboratories should be compared using Student's *t*-test for unpaired data and an acceptable probability level chosen by the two parties before testing is begun. If a bias is found, either its cause must be found and corrected or the purchaser and the supplier must agree to interpret future test results in the light of the known bias.

6. Apparatus

6.1 Measuring device, meter (yard) stick or steel tape having 1 mm ($\frac{1}{16}$ in.) graduations and a length that is greater than the width of fabric to be measured.

7. Sampling

7.1 As a lot sample for acceptance testing, take at random the number of rolls of fabric as directed in an applicable material specification or other agreement between the purchaser and the supplier.

7.2 For Option A, consider rolls of fabric to be the primary sampling units. Consider the rolls of fabric in the lot sample as the laboratory sample and the points at which measurements are made within the rolls as test specimens. Circular knits may be measured in tubular or slit form.

7.3 For Option B, cut a full width swatch at least 2 m (2 yd) long from each lot sampling unit as a laboratory sampling unit, taking care that the construction is not distorted within the swatches. Consider the points at which the measurements are made within the swatches as test specimens. This option is not suitable for acceptance testing because the results are applicable to those swatches only. Circular knits may be measured in tubular or slit form.

8. Conditioning

8.1 Condition the specimens as directed in Practice [D1776/D1776M](#).

8.2 When full rolls or bolts of fabric cannot be properly conditioned in a reasonable time with available facilities, perform the tests without conditioning and report the actual conditions prevailing at the time of the test. Such results may not correspond with the results obtained after testing conditioned specimens in the standard atmosphere for testing textiles.

9. Procedure

9.1 Make all measurements, when possible, in the standard atmosphere for testing textiles, which is $21\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ ($70\text{ }^{\circ}\text{F} \pm 4\text{ }^{\circ}\text{F}$) and $65\% \pm 5\%$ relative humidity.

9.2 Option A—Full Roll or Bolt:

9.2.1 *Free of Tension*—Lay the fabric on a smooth horizontal surface without tension in any direction. For circular knits to be measured in tubular form, lay the tube flat on a smooth,

horizontal surface, without tension in any direction. Measure the perpendicular distance between the outer edges of the fabric (including selvages, if present) to the nearest 1 mm ($\frac{1}{16}$ in.), using the measuring device or steel tape. Refer to terminology for the specific measurement points for each fabric construction. Take the measurement in at least five widely spaced places along the length of the roll or bolt. Make no measurement within 1 m (1 yd) of the ends of the roll or bolt. When specified, measurements of raised-surface or usable width may be made at the same time. Calculate and record the average of all measurements to the nearest 1 mm ($\frac{1}{16}$ in.). Record the minimum and maximum values for each roll and for the lot.

9.2.2 *Running Under Tension* (for woven fabrics only)—When agreed upon by all parties concerned, take five measurements of the perpendicular distance between outer edges of the fabric (including selvages, if present) to the nearest 1 mm ($\frac{1}{16}$ in.) at any convenient time during the finishing or inspection operations using the measuring device. Make no measurement within 1 m (1 yd) of the ends of the roll or bolt. When specified, measurements of raised-surface or usable width may be made at the same time. Calculate and record the average of all measurements to the nearest 1 mm ($\frac{1}{16}$ in.). Record the minimum and maximum values for each roll and for the lot.

9.3 Option B—Laboratory Sample Removed From Full Roll or Bolt:

9.3.1 Lay the fabric on a smooth horizontal surface without tension in any direction and free of wrinkles or distortion. For circular knits to be measured in tubular form, lay tube flat on a smooth, horizontal surface, without tension in any direction. Handle carefully to avoid distortion. Measure the perpendicular distance between outer edges of the fabric (including selvages, if present) to the nearest 1 mm ($\frac{1}{16}$ in.) at three or more points separated by at least 0.3 m (1 ft) along the length of the fabric. Refer to terminology for the specific measurement points for each fabric construction. Do not make measurements closer than 150 mm (6 in.) to the cut ends. When specified, measurements of raised-surface or usable width may be made at the same time. Calculate the average of all measurements on the specimen to the nearest 1 mm ($\frac{1}{16}$ in.). Record the average measurement, the maximum measurement, and the minimum measurement.

10. Report

10.1 State that the specimen was tested as directed in Test Method D3774. Describe the material or product sampled and the source of each specimen.

10.2 Report the following information:

10.2.1 Option used and if tension was used in Option A.

10.2.2 Whether full width or usable width was measured. Include a description of usable width, as agreed upon by purchaser and supplier.

10.2.3 If sample was a circular knit, report whether it was measured in tubular or slit form.

10.2.4 Number of observations.

10.2.5 Average of all observations for each roll and for the lot, to the nearest 1 mm ($\frac{1}{16}$ in.) or as specified between purchaser and seller.