



Standard Test Method for Stretch Properties of Textile Fabrics – CRE Method¹

This standard is issued under the fixed designation D 6614; 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 the amount of fabric stretch and fabric growth after a specified extension and held for a specified time.

1.2 While this method can be used for any fabric, knit fabrics having high stretch are better measured by test method D 2594.

1.3 This test method should not be used to measure the breaking strength and elongation of woven fabrics, which is covered in Test Methods D 5034 and D 5035.

1.4 The values listed in either SI units or inch-pound units are to be regarded separately as the standard. Within the text, the inch-pound units are shown in parentheses. The values stated in each system are not exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in nonconformance with specification.

1.5 *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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

D 123 Terminology Relating to Textiles²

D 1776 Practice for Conditioning and Testing Textiles²

D 2594 Test Methods for Stretch Properties of Knitted Fabrics Having Low Power²

D 5034 Test Methods for Breaking Force and Elongation of Textile Fabrics (Grab Test)³

D 5035 Test Method for Breaking Force and Elongation of Textile Fabrics (Strip Test)³

3. Terminology

3.1 Definitions:

3.1.1 *fabric stretch, n*—the increase in length of a specimen of fabric resulting from a tension applied under specified conditions.

3.1.1.1 *Discussion*—Fabric stretch is usually expressed as a percentage of the length of the specimen prior to loading.

3.1.2 *fabric growth, n*—the difference between the original length of a specimen and its length after the application of a specified tension for a prescribed time and the subsequent removal of the tension.

3.1.2.1 *Discussion*—Fabric growth is usually expressed as a percentage of the length of the specimen prior to loading. (see also permanent deformation)

3.1.3 *stretch yarn, n*—a generic term for filament or spun yarns having a high degree of potential elastic stretch and a rapid recovery.

3.1.3.1 *Discussion*—Stretch yarns are generally produced by an appropriate combination of deforming, heat setting, and developing treatments to attain elastic properties.

3.2 For definitions of other textile terms used in this method, refer to Terminology D 123.

4. Summary of Test Method

4.1 *Fabric Stretch and Fabric Growth*—A specified load is applied to a fabric specimen, using a constant rate of extension tensile tester at a prescribed rate of extension. After holding at the specified load for a predetermined time, the length is measured. The load is removed from the specimen and allowed to relax for a specified time. A small amount of force, enough to remove any wrinkles or folds, is applied and the specimen length measured. The amount of fabric stretch is calculated from the difference in length prior to load and under load. Fabric growth is calculated from the difference in length prior to loading and after relaxation.

5. Significance and Use

5.1 This method is used to determine the stretch and growth properties which a garment made of the fabric may be expected to exhibit during use.

5.2 This is a new method and therefore the history of data is very small, however the excellent agreement of between-laboratory data suggest this method may be considered for acceptance testing of commercial shipments.

5.2.1 If there are differences of practical significance between reported test results for two laboratories (or more), comparative test should be performed to determine if there is a statistical bias between them, using competent statistical assistance. As a minimum, samples used for such comparative tests should be as homogeneous as possible, drawn from the same

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 Test Methods, General.

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² *Annual Book of ASTM Standards*, Vol 07.01.

³ *Annual Book of ASTM Standards*, Vol 07.02.