



Standard Test Method for Twist in Yarns by Direct-Counting¹

This standard is issued under the fixed designation D1423/D1423M; 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 determination of the amount and direction of twist at the completion of any stage of twisting in single (spun or filament), plied, cabled, or novelty (exclusive of long-term repeat patterns) yarns. The procedures are designed primarily for yarns in packages, but, with special precautions, they are applicable to yarns taken from fabrics. The procedure for spun yarn in 9.2 is also applicable to rovings.

1.2 For plied yarns, this test method covers the determination of the twist of the plied yarns and the twist of the single yarn before plying. For cabled yarns, the test method covers the determination of the cable or hawser twist; the twist of the plied yarn after plying, but prior to the last twisting operation; and the twist of the single yarn before plying. Procedures are also included for the determination of the twists of the single and plied yarn components as they lie in the final structure. Also, directions are included for the determination of twist in plied yarn made with direct cabling technology.

1.3 This test method is not intended for yarns that extend more than 5.0 % when tension is increased from 2.5 to 7.5 mN/tex [0.25 to 0.75 gf/tex]. Following the procedures of this test method for such yarns would be independent of the bias and precision determined for this test method. The report from such testing should include the tension used for this testing.

1.4 *Units*—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 a more rapid but less accurate method of determining twist in single spun yarns, refer to Test Method D1422.

NOTE 2—This test method has been evaluated for use in determining twist in open end yarns and is not recommended.

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*:²

D123 Terminology Relating to Textiles

D1059 Test Method for Yarn Number Based on Short-Length Specimens (Withdrawn 2010)³

D1422 Test Method for Twist in Single Spun Yarns by the Untwist-Retwist Method

D1776 Practice for Conditioning and Testing Textiles

D1907 Test Method for Linear Density of Yarn (Yarn Number) by the Skein Method

D3888 Terminology for Yarn Spinning Systems

D4849 Terminology Related to Yarns and Fibers

3. Terminology

3.1 Refer to Terminology D4849 for definitions of the following terms used in this standard: direction of twist, single yarn, spun yarn, twist, twist factor, twist multiplier, and yarn.

3.2 Refer to Terminology D123 and Terminology D3888 for definitions of other terms used in this standard.

4. Summary of Test Method

4.1 A specified length of specimen is mounted in a twist device. One end is rotated until all the elements are free of twist. The number of turns is counted and the turns per unit length are calculated.

4.2 The amount of twist in the component elements of a plied or cabled yarn is determined by either of two options.

4.2.1 In the procedure for determining original twist, one end of the yarn is fixed while the other end is rotated until the

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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.

³ The last approved version of this historical standard is referenced on www.astm.org.