



Standard Test Methods for Steel Tire Cords¹

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1. Scope

1.1 These test methods cover the testing of cords made from steel that are specifically designed for use in the reinforcement of pneumatic tires. By agreement, these test methods may be used to test similar cords or filaments used for reinforcing other rubber products. The steel cords may be wound on spools or beams. The steel cords may also be woven into fabric, in which case they must be removed from the fabric prior to testing.

NOTE 1—For other methods of testing tire cords and tire cord fabrics, refer to Methods D 885, Test Methods D 1871, Specifications D 122, and Test Methods D 2692 and D 2970. For tolerances on tire cords and tire cord fabrics, refer to Specifications D 122 and Methods D 885.

1.2 These test methods include test procedures only; they do not establish specifications or tolerances.

1.3 This test method includes the following sections:

Subject	Section
Adhesion of Steel Cords and Filaments to Elastomers	16
Brass Coating Composition and Mass	14, 15
Breaking Force (Strength)	10
Construction	12
Data Form for Reporting Test Results	Appendix X1
Elongation at Break	10
Elongation Between Defined Forces (EDF)	11
Flare	8
Lay	12
Linear Density	9
Visual Appearance	8
Nomenclature System	Annex A1
Residual Torsions	8
Straightness	8
Thickness and Out-of-Roundness	13

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 and health practices and determine the applicability of regulatory limitations prior to use.* See 14.3 and Note 11.

1.5 This standard is written in SI units. No other units of measurement are included in this standard.

2. Referenced Documents

2.1 ASTM Standards:

¹ These test methods are under the jurisdiction of ASTM Committee D13 on Textiles and are the direct responsibility of Subcommittee D13.19 on Tire Cord and Fabrics.

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D 76 Specification for Tensile Testing Machines for Textiles²

D 122 Specifications for Tire Fabrics Other Than Tire Cord Fabrics³

D 123 Terminology Relating to Textiles²

D 885 Methods of Testing Tire Cords, Tire Cord Fabrics, and Industrial Filament Yarns and Cords Made from Manufactured Organic-Based Fibers²

D 1777 Test Method for Thickness of Textile Materials²

D 1871 Test Methods for Adhesion of Single-Filament Steel Wire to Rubber²

D 2229 Test Method for Adhesion Between Steel Tire Cords and Rubber²

D 2692 Test Method for Air Wicking of Tire Fabrics, Tire Cord Fabrics, Tire Cord, and Yarns²

D 2904 Practice for Interlaboratory Testing of a Textile Test Method that Produces Normally Distributed Data²

D 2970 Methods of Testing Tire Cords, Tire Cord Fabrics and Industrial Yarns Made from Glass Filaments²

D 4393 Test Method for Strap Peel Adhesion of Reinforcing Cords or Fabrics to Rubber Compounds⁴

D 6477 Terminology Relating to Tire Cord, Bead Wire, Hose Reinforcing Wire, and Fabrics⁴

E 663 Practice for Flame Atomic Absorption Analysis⁵

2.2 *International Bureau for the Standardization of Man-Made Fibers (BISFA):*

*Internationally Agreed Methods for Testing Steel Tire Cords*⁶

3. Terminology

3.1 Definitions:

3.1.1 For definitions of terms relating to tire cord, bead wire, hose wire, and tire cord fabrics, refer to Terminology D 6477.

3.1.2 For definitions of other terms related to textiles, refer to Terminology D 123.

4. Summary of Test Method

4.1 A summary of the test methods prescribed for the determination of specific properties is stated in each of the

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

³ Discontinued. See 1993 *Annual Book of ASTM Standards*, Vol 07.01.

⁴ *Annual Book of ASTM Standards*, Vol 07.02.

⁵ Discontinued. See 1996 *Annual Book of ASTM Standards*, Vol 03.06.

⁶ Available from BISFA, Lauren Garten Strasse 12, PO Box, CH-4010 BASLE Switzerland.