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STANDARD SPECIFICATIONS

FOR

TOLERANCES AND TEST METHODS FOR ELECTRICAL COTTON YARNS[1]

A.S.T.M. Designation: D 203 - 33

These specifications are issued under the fixed designation D 203; the final number indicates the year of original adoption as standard or, in the case of revision, the year of last revision.

ISSUED AS TENTATIVE, 1924; ADOPTED IN AMENDED FORM, 1925; REVISED, 1933.

Scope

1. These specifications cover the tolerances and methods of testing for electrical cotton yarns, both single and multiple wound.

TOLERANCES

Strength

2. The average tensile strength of each case or bale of yarn, either single or plied, as determined by test shall be not less than the specified strength.

Size or Yarn Number

3. The average size of each case or bale of yarn, in the singles, either carded or combed, as determined by test shall not be more than 3 per cent over or under the specified size.

Example.—No. 36 carded yarn specified; tolerance would allow 34.92 to 37.08.

Twist

4. *Direction of Twist.*—The direction of twist shall be as defined in the Tentative Definitions and Terms Relating to Textile Materials (A.S.T.M. Designation: D 123 - 33 T) of the American Society for Testing Materials, as follows:

Twist, Direction of.—In the case of yarn or cord, the yarn or cord has right-hand or regular twist if when it is held vertically the spirals or twists are seen to incline upward in a right-hand direction and has left-hand or reverse twist when the spirals or twists are seen to incline upward in a left-hand direction.

NOTE.—Attention is called to the fact that this definition of twist is opposite to that used in sewing thread manufacture.

[1] Under the standardization procedure of the Society, these specifications are under the jurisdiction of the A.S.T.M. Committee D-13 on Textile Materials.

Twist of Plied Yarns

5. The average twist of each case or bale of yarn, either single or plied, as determined by test shall not be more than 5 per cent over or under the specified twist.

Example.—Twist specified is 20 twists per inch; tolerance 19 to 21.

METHODS OF TESTING

STRENGTH

Testing Machine

6. All skeins shall be broken on an automatic power yarn tester of inclination balance type of 150 and 300-lb. capacities. The lower capacity should be used until the swing of the pendulum exceeds an angle of 45 deg. from the vertical. When yarns break above this mark, the higher capacity of testing machine should be used.

Spools

7. The spools used in holding skeins during testing shall not be less than 1 in. in diameter, and not less than 1 in. in width. The upper or head end spool should be fastened solidly, and the lower spool be allowed to revolve.

Speed

8. The speed of pulling jaw shall be 12 in. per minute.

Reels

9. Any yarn reel having a $1\frac{1}{2}$-yd. perimeter may be used in preparing the skeins. For yarn wound on cones, where the yarn is drawn from the top, a speed of 100 to 300 r.p.m. of reel shall be used. For yarn wound on parallel tubes, the yarn shall be drawn from the side, and a speed of 20 to 30 r.p.m. of reel shall be used. On reels that have only one pigtail guide and for yarns on cops or cones, either single

TABLE I.

NUMBER OF ENDS IN SINGLE STRAND	LENGTH TO REEL FOR TEST, YD.
2	60
3	45
4 and 5	30
6 and 7	21
8 and above	15

end or multiple wound, the tension shall be applied by making one full wrap around the guide. For yarns on parallel tubes, either single end or multiple wound, there shall be no wraps around the guide. On reels using two or more guides, the yarn, either single end or multiple wound, shall pass straight through the guides onto the reel, the angles of the guides supplying the necessary tension. Judgment must be