

Reference book not to be taken from the Library.

U. S. Gov't  
Master  
Specification,  
No. 160

**DEPARTMENT OF COMMERCE**

**BUREAU OF STANDARDS**  
**George K. Burgess, Director**

**CIRCULAR OF THE BUREAU OF STANDARDS, No. 167**

[Issued July 12, 1924]

**UNITED STATES GOVERNMENT MASTER SPECIFICATION FOR  
TENT DUCK (SPECIAL CONSTRUCTION FOR BLEACHING OR  
DYEING), GREY**

**FEDERAL SPECIFICATIONS BOARD, SPECIFICATION No. 160**

This specification was officially adopted by the Federal Specifications Board on June 1, 1924, for the use of the Departments and Independent Establishments of the Government in the purchase of tent duck (special construction for bleaching or dyeing), grey.

**CONTENTS**

|                                | Page. |
|--------------------------------|-------|
| 1. Type and grade.....         | 1     |
| 2. Material .....              | 1     |
| 3. General requirements.....   | 2     |
| 4. Detail requirements.....    | 2     |
| 5. Method of testing.....      | 3     |
| 6. Packing and marking.....    | 5     |
| 7. Additional information..... | 5     |
| 8. General specifications..... | 5     |

**I. TYPE AND GRADE**

The material as set forth below shall be the type of duck known as tent duck of a grade suitable for bleaching or dyeing or for use in the grey state.

**2. MATERIAL**

The duck shall be made of cotton thoroughly cleaned and free from waste. It shall be evenly woven without sizing, and shall be free from an excessive number of avoidable imperfections of manufacture.

## 3. GENERAL REQUIREMENTS

(a) LENGTH OF BOLT OR ROLL.—The term “bolts” is hereby defined as meaning continuous lengths averaging from 50 to 65 yards.

The term “double cut” is hereby defined as meaning continuous lengths averaging from 100 to 130 yards, but a continuous length of not less than 80 yards shall constitute a good commercial delivery.

Measurements for length shall be made at the point of manufacture, at the point of delivery, or at any other point as stated in the proposal.

## 4. DETAIL REQUIREMENTS

(a) FINISH.—These specifications shall be for the unfinished material.

(b) WEAVE.—The weave shall be plain.

(c) THREAD COUNT AND PLY.—The thread count and ply may exceed those shown in the table in either warp or filling or in both, in the discretion of the manufacturer, but they shall not be uniformly less than as shown in the table. The allowable variation from the standard count adopted shall not exceed within a bolt plus or minus two threads for either the warp or filling.

(d) WIDTH.—The basic average width shall be as specified from 28½ to 36 inches. A tolerance of plus or minus one-fourth inch will be permitted.

(e) WEIGHT.—The weight shall be as given in the table with a tolerance of plus or minus 2½ per cent.

(f) BREAKING STRENGTH (grab method, 1 by 1 by 3 inches).—The minimum breaking strength as determined by the test specified below shall be as specified in the table.

(g) TABLES.—

TABLE 1.—Requirements

| Weight          |                 | Width                   | Ply     |         | Thread count |          | Breaking strength     |         |
|-----------------|-----------------|-------------------------|---------|---------|--------------|----------|-----------------------|---------|
| Per linear yard | Per square yard | Not otherwise specified | Minimum |         | Minimum      |          | Minimum               |         |
|                 |                 |                         | Warp    | Filling | Warp         | Filling  | 1 by 1 by 3 inch grab |         |
|                 |                 |                         |         |         |              |          | Warp                  | Filling |
| Ounces          | Ounces          | Inches                  |         |         | Per inch     | Per inch | Pounds                | Pounds  |
| 8.25            | 8.48            | 35                      | 2       | 2       | 62           | 60       | 130                   | 120     |
| 8.42            | 10.10           | 30                      | 2       | 2       | 52           | 40       | 160                   | 110     |
| 10.75           | 12.68           | 30½                     | 3       | 2       | 46           | 38       | 210                   | 130     |
| 12.90           | 15.35           | 30¼                     | 3       | 3       | 46           | 34       | 235                   | 180     |

TABLE 2.—Purchasing guide (for information only)

| Grey            |        | Finished        |        |
|-----------------|--------|-----------------|--------|
| Weight          | Width  | Weight          | Width  |
| Per linear yard |        | Per linear yard |        |
| Ounces          | Inches | Ounces          | Inches |
| 8.25            | 35     | 7.25            | 33     |
| 8.42            | 30     | 8.0             | 28½    |
| 10.75           | 30½    | 10.3            | 29½    |
| 12.90           | 30½    | 12.4            | 29½    |

## 5. METHOD OF TESTING

(a) **SAMPLING.**—From each delivery of 1,000 yards or fraction thereof, a sample of not more than 2 linear yards shall be cut from any part of at least two rolls for test purposes.

(b) **ATMOSPHERIC CONDITIONS.**—Tests may be made under prevailing atmospheric conditions, except in the settlement of disputes where moisture is an influencing factor in tests for breaking strength, thread count, weight, width, length, sizing, etc. Such tests shall then be made upon material having normal moisture content, obtained by exposure for at least four hours to an atmospheric condition of 65 per cent relative humidity at 70° F.

(c) **BREAKING STRENGTH** (Grab method, 1 by 1 by 3 inches).—Six test specimens 6 inches long by 4 inches wide shall be cut, three in the direction of the warp and three in the direction of the filling, respectively. Care shall be taken that no two test specimens include the same threads, except for retest as specified below. No sample for testing should be taken at less than 8 inches from either selvage.

The machine used shall be of the inclination balance type. The maximum capacity of the machine shall be 800 pounds. The lower or pulling jaw shall travel at a uniform rate of 12 inches per minute under no load. The distance between jaws shall be 3 inches at start of test. The inside or back half of each jaw shall be 2 inches or more in width; the other half shall be 1 inch in width. Jaws shall have a smooth flat surface with edges slightly rounded to prevent cutting. The results of the test in each direction shall be averaged. If a specimen slips in the jaw, breaks in the jaw, breaks at the edge of the jaw, or for any reason due to faulty operation the result falls markedly below the general average, the result shall be disregarded, another specimen taken from the same threads, and the result of this break included in the average.

(d) **THREAD COUNT.**—The thread count shall be determined by ascertaining the number of threads in 3 inches taken consecutively,

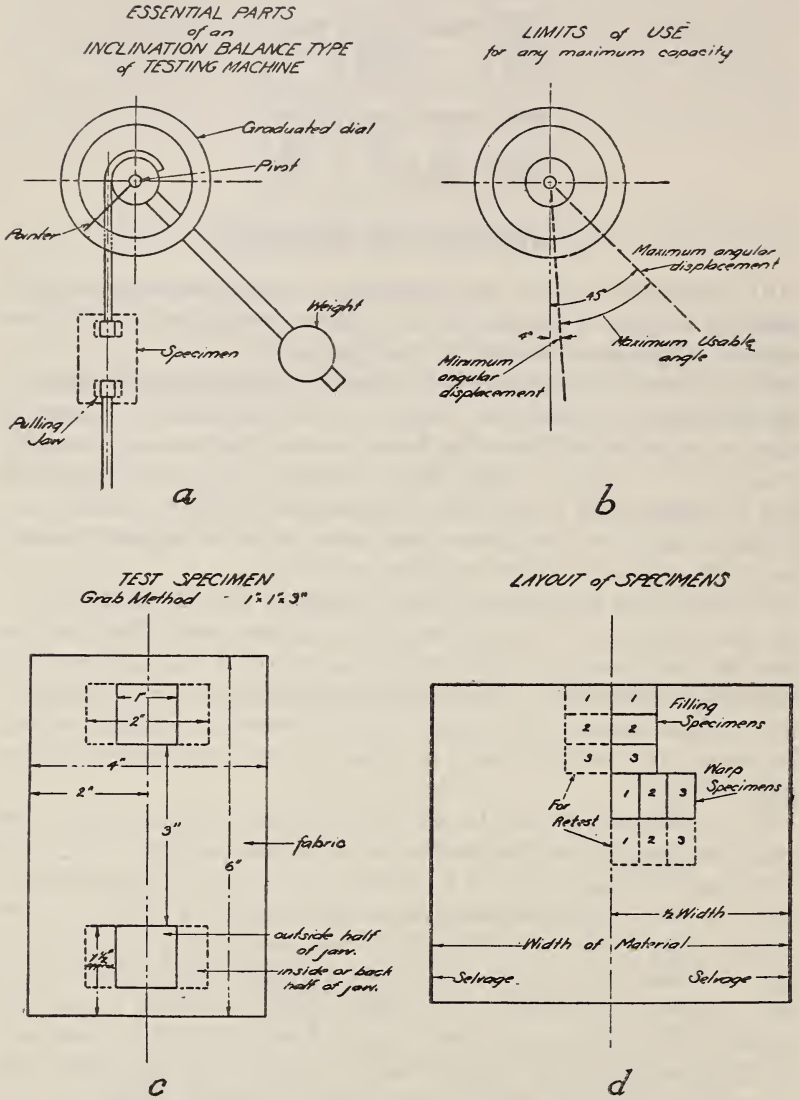


FIG. 1.—Type of machine, layout, and dimensions of specimen

and reducing the terms to 1 inch. The warp count shall not be taken at less than 8 inches from either selvage.

(e) LENGTH OF BOLT OR ROLL.—In the event of a dispute regarding measurements, the material shall be placed under sufficient tension to make it lie flat upon a table, or other plane surface, and exposed for at least four hours to an atmosphere of 65 per cent relative humidity at 70° F., and when measured under these conditions the yardage delivery shall be not less than the invoiced yardage.

(f) CAUSES FOR REJECTION.—In the event of a dispute in regard to width, the average width shall be determined by measuring in not less than five places, about equally distant, throughout the length of the bolt or roll. In no place shall the variation in width be more than one-eighth inch greater than the tolerance for average width specified in paragraph entitled "Width."

In the event of a dispute in regard to weight, the weight per square yard shall be determined from the nominal width, the invoiced yardage (verified when necessary), and the actual weight of the entire bolt or roll.

The results of tests on 1 or 2 yards for width and weight shall not be used alone as a basis for rejection.

No rolls or bolts running less than 10 per cent under the strength specified shall be rejected, provided the delivery in question shall average up to specifications.

No rolls or bolts shall be rejected, the combined strength of the warp and filling of which shall be equal to the combined strength specified in the paragraph entitled "Breaking Strength," provided neither element is more than 10 per cent under the requirements applying to that element.

## 6. PACKING AND MARKING

No details.

## 7. ADDITIONAL INFORMATION

No details.

## 8. GENERAL SPECIFICATIONS

No details.

---

ADDITIONAL COPIES  
OF THIS PUBLICATION MAY BE PROCURED FROM  
THE SUPERINTENDENT OF DOCUMENTS  
GOVERNMENT PRINTING OFFICE  
WASHINGTON, D. C.  
AT  
5 CENTS PER COPY

▽











