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BRITISH STANDARD SPECIFICATION FOR HEAVY COTTON FABRICS FOR AERONAUTICAL PURPOSES

FOREWORD

This British Standard, one of a series for textiles of a quality suitable for aeronautical purposes, replaces Ministry of Aviation Specification D.T.D. 429A and British Standard 2F.37. During preparation of the standard, minor alterations only have been made to the technical requirements but the standard now provides for the fabric to be rot-proofed and stipulates dye fastness properties for fabric when required in the dyed condition. Provision is also made for the fabric to be identified by a code reference.

Metric equivalents of British units are given in the Appendix; the figures in British units are to be regarded as the standard.

This standard makes reference to the following British Standards:

- British Standard F. 100 Inspection and testing procedures for textiles for aeronautical purposes.
- B.S. 350 Conversion factors and tables.
- B.S. 947 Yarn count systems and their conversions.
- B.S. 1006 Method for the determination of fastness to daylight of coloured textiles.
- B.S. 2087 Chemical requirements for textiles treated by certain preservative processes.
- B.S. 2681 Method for the determination of colour fastness to water.

NOTE. In place of the customary, but incorrect, use of the pound as a unit of force, the unit called a pound-force (abbreviation lbf) has been used in this standard. It is that force which, when acting on a body of mass one pound, gives it an acceleration equal to that of standard gravity.

SPECIFICATION

SCOPE

1. This British Standard specifies the requirements for heavy cotton fabrics for aeronautical purposes. Two weights of fabric are provided of the following designations:

- No. 429—16¾ oz.
- No. 37 —18 oz.

YARN

2. Unsized cotton yarns*, substantially free from trash and seed coat, shall be used in the manufacture of the fabric.

MANUFACTURE

3. a. The weave shall be plain.
- b. The fabric shall be uniformly woven.

* Yarns plied from singles of nominally 12s grey count have been found suitable in both warp and weft.

c. The nominal width of the fabric shall be as stated in the contract or order; the actual width shall be not less than that specified and shall not vary by more than ½ inch.

NOTE. If the fabric is subsequently to be supplied in a finished condition, at a stipulated finished width, allowance for the consequent widthway shrinkage should be made: this shrinkage is usually of the order of 5 per cent.

d. If required, a warp thread of blue colour for No. 429 fabric and of red colour for No. 37 fabric shall be woven into the fabric 1½ inches from each selvage.

CONSTRUCTION AND PROPERTIES

4. The loomstate fabric shall comply with the requirements of Table 1.

TABLE 1

Designation	Plies of yarn		Minimum threads per inch		Weight oz/sq yd	Minimum average breaking strength lbf per inch width	
	Warp	Weft	Warp	Weft		Warp	Weft
No. 429	3	4	44	29	16½ ± ½	160	160
No. 37	4	4	40	30	18½ ± ½	180	180

FINISH

5. The fabric shall be supplied as ordered:

a. In loomstate.

b. Finished:

(i) *Dyeing*. If dyeing is required the colour shall be as stipulated in the contract or order; a Sulphur dye shall not be used. The fastness of the colour to light shall not be less than standard 5 when tested by the method described in B.S. 1006 and the fastness of the colour to water, in respect of staining and of change of colour, shall be not less than rating 4 when tested by the method described in B.S. 2681 (Type tests).

The minimum average breaking strength of the dyed fabric shall continue to comply with the requirements of Table 1.

(ii) *Mineral khaki*. If khaki colour is acceptable the fabric may be coloured and rot-proofed by the application of mineral khaki (normal process) and shall be stitch finished, in accordance with B.S.2087. With mineral khaki treated fabric, testing of the dye fastness properties stipulated in Clause 5b(i) is not required.

(iii) *Rot-proofing*. If rot-proofing is required, other than mineral khaki, the fabric shall be treated with pentachlorophenyl laurate in accordance with B.S. 2087. (This proofing is colourless.)

FREEDOM FROM DEFECTS

6. The fabric shall be as free as possible from defects, to the satisfaction of the Inspector.

SAMPLING AND TESTING

7. a. Unless otherwise agreed with the Inspecting Authority, the selection of test samples and the tests for weight and breaking strength shall be in accordance with British Standard F.100.

b. Tests designated as 'Type tests' shall be dealt with as defined in Clause 2c of British Standard F.100.

IDENTIFICATION

8. The fabric shall be identified for ordering purposes by the number of this British Standard, together with the relevant designation given in Table 1 and a reference to the finish required, as set out in Clause 5.

For example, fabric No. 429 dyed blue-grey and rot-proofed shall be identified as 'B.S. 3F.37/429/5b (i) blue-grey/5b(iii)'.

APPENDIX

METRIC EQUIVALENTS OF BRITISH UNITS

British unit	Metric equivalent
1 inch	25.4 millimetres
1 yard	0.91 metres
1 ounce	28.35 grammes
1 pound	0.45 kilogrammes
1 thread per inch	3.94 threads per 10 centimetres
Yarn count (cotton)	590.5
	Yarn count = Tex

The metric conversions are approximate. More accurate conversions should be based on the tables in B.S.350 'Conversion factors and tables', or B.S.947 'Yarn count systems and their conversions'.

This British Standard, having been approved by the Aircraft Industry Standards Committee and endorsed by the Chairman of the Engineering Divisional Council, was published under the authority of the General Council of the Institution on 28th June, 1963.

The Institution desires to call attention to the fact that this British Standard does not purport to include all the necessary provisions of a contract.

British Standards are revised, when necessary, by the issue either of amendment slips or of revised editions. It is important that users of British Standards should ascertain that they are in possession of the latest amendments or editions.

The following B.S.I. references relate to the work on this standard:
Committee reference ACE/26. Draft for comment CT(ACE) 8762.