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## BRITISH STANDARD FOR LINEN FABRIC AND TAPE FOR AERONAUTICAL PURPOSES

### FOREWORD

This British Standard is one of a series for textiles of a quality suitable for aeronautical purposes. This particular standard replaces British Standard 6 F. 1 and also incorporates D.T.D. 540. In the course of its preparation, provision has been made for the fabric to be supplied in any of four conditions, i.e. loomstate (cropped), cropped and singed, finished for doping or dyed. Requirements are given for the material in each of the finished states and for the standard of finish, where applicable. A requirement has also been introduced that tape used for parachutes or parachute equipment shall be rot-proofed, and information has been given in the Appendix regarding the metric equivalents of British units. 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 procedure for textiles for aeronautical purposes.  
B.S. 350 Conversion factors and tables.  
B.S. 947 Yarn count systems and conversions  
B.S. 1006 Determination of fastness to daylight of coloured textiles.  
B.S. 2087 Chemical requirements for textiles treated by certain preservative processes.  
B.S. 2681-86 Methods for determining the colour fastness of textiles.  
B.S. 2681 Colour fastness to water

### SPECIFICATION

#### SCOPE

1. This British Standard specifies the requirements for a linen fabric and linen tape for aeronautical purposes.

#### Section One—Linen Fabric

2. *a.* Flax yarn\* shall be used in the manufacture of the fabric.  
*b.* The weight of the yarn shall have been reduced by

\* Counts of yarn in warp and weft which have been found suitable are:  
Before boiling in the yarn ... .. 70±2  
When boiling in the rove before spinning applies ... 81±2

not less than 12½ per cent by boiling in the yarn or by not less than 14 per cent and not more than 18 per cent by boiling in the rove.

#### MANUFACTURE

3. *a.* The weave shall be plain.  
*b.* The fabric shall be uniformly woven. The selvages may, at the option of the manufacturer, contain not more than 10 ends each of folded cotton yarn.

#### CONSTRUCTION AND PROPERTIES

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

TABLE 1

Finish	Minimum threads per inch		Maximum weight g/sq. yd	Minimum average breaking strength lb per inch width	
	Warp	Weft		Warp	Weft
Loomstate (cropped)	74	80	4.3	78	83
Cropped and singed	74	79	4.3	78	82
Finished for doping	74	76	4.2	80	80
Dyed	78	72	4.5	74	70

FINISH

5. The fabric shall be supplied as ordered:

a. In loomstate (cropped).

b. Cropped and singed.

c. *Finished for doping.* The finish may be obtained by beetling and/or calendering. The smoothness of the finish shall be not inferior to that of the standard sample (Standard for Doping Finish\*). A test sample of the fabric when doped shall be not inferior to the standard sample when similarly treated, in drying rate, evenness, penetration of the dope and smoothness of surface. (Type test.)

d. *Dyed red.* Red dyed fabric shall be scoured and shall be dyed with Insoluble Azoic dye to match the shade of the standard sample (Standard for Red Dyed Fabric\*). The fastness to light shall be not less than Standard 6 when tested by the method described in B.S. 1006, and the fastness to water, in respect of change of colour and staining shall be rating 5 described in B.S. 2681 (Type tests).

e. *Dyed blue grey.* Blue-grey fabric shall be scoured and shall be dyed with Vat dye. It shall match the standard sample (Standard for Blue-Grey Dyed Fabric\*) in shade, and in respect of levelness of the yarns and freedom from defects which are especial requirements of the blue-grey fabric. The fastness to light shall be not less than Standard 6 when tested by the method described in B.S. 1006, and the fastness to washing in respect of change of colour and staining shall be rating 5 when tested by the method described in B.S. 2685 (Type tests).

FREEDOM FROM DEFECTS

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

WIDTH

7. The width of the fabric at any part shall be not less than that stipulated in the contract or order. (Normal widths for ordering are 38 inch, 48 inch and 54 inch for fabric in accordance with Clause 5a, 5b or 5c and 36 inch and 45 inch for dyed material). The variation of width between one part and another of a single piece shall not exceed  $\frac{1}{2}$  inch.

SAMPLING AND TESTING

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

\* These standard samples may be obtained from:

Director of Aeronautical Inspection (I.N.M.2)  
Harefield House,  
Harefield, Middlesex.

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

In respect of the requirements of Table 1 an acceptable procedure is to test the fabric in loomstate (cropped) or in the cropped and singed condition to the full requirements of the table: subsequently, fabric which is finished in accordance with Clause 5c, 5d and 5e need be tested for breaking strength only.

PACKING

9. The fabric shall be delivered free from creases and, unless otherwise stipulated in the contract or order, lapped on drums having a length equal to the width of the fabric, a width of 6 inches and a thickness of  $\frac{1}{2}$  inch.

IDENTIFICATION

10. The fabric shall be identified for ordering purposes by the number of this British Standard and by the finish required, as set out in Clause 5.

For example, fabric required finished for doping shall be identified as British Standard F. 1/5c.

Section Two—Serrated Edge Tape

MANUFACTURE

11. The serrated edge tape shall be cut lengthwise from fabric which has been finished in accordance with Clause 5c and otherwise complies with the requirements of Section One of this British Standard. There shall be four to eight serrations per inch and the depth of each serration shall be not more than  $\frac{1}{8}$  inch.

WIDTH

12. The width of the tape shall be not less than that stipulated in the contract or order and shall not exceed that width by more than  $\frac{1}{8}$  inch. The width stipulated in the contract or order shall be deemed to be the width as measured between the peaks of the serrations.

FINISH

13. When required for parachutes or parachute equipment the tape shall have been rot-proofed with pentachlorophenyl laurate in accordance with B.S. 2087, and the warp breaking strength of the fabric from which the tape has been cut shall be not less than 78 lb per inch width.

IDENTIFICATION

14. The tape shall be identified for ordering purposes by the number of this British Standard, by reference to Section Two and to the width required and by the finish, if required.

For example, a rot-proofed tape of 2 inch width shall be identified as British Standard F.1/Section Two/2 inch/finished.

APPENDIX  
METRIC EQUIVALENTS OF BRITISH UNITS

British unit	Metric equivalent
1 inch	25.4 millimetres
1 thread per inch	3.9 threads per 10 centimetres
1 ounce per square yard	33.9 grammes per square metre
pounds per inch width	0.89 Kilogrammes per 5 centimetre width
Yarn count (Linen wet spun)	1654 = Tex.
	Yarn count

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 conversion.'

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 6th October, 1959.

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/20.      Draft for comment CV(ACE)5110