BS 6F 49:2007

BRITISH STANDARD

Specification for

Shuttle woven cotton webbing for aerospace purposes

ICS 49.025.60

Publishing and copyright information

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The following BSI references relate to the work on this standard:
Committee reference ACE/65
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Publication history

BS 3F 49 published in 1972

BS 4F 49 published in February 1984

BS 5F 49 published in January 1991

Amendments issued since publication

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Contents

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 6, an inside back cover and a back cover.

Foreword

Publishing information

This British Standard was published by BSI and came into effect on 30 November 2007. It was prepared by Technical Committee ACE/39, *Textiles for aerospace purposes*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This British Standard supersedes BS 5F 49:1991, which is withdrawn.

Information about this document

This new edition incorporates technical changes only. It does not represent a full review or revision of the standard, which will be undertaken in due course.

Hazard warnings

WARNING. This British Standard calls for the use of substances and/or procedures that can be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage.

Use of this document

It has been assumed in the preparation of this British Standard that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is “shall”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

1 Scope

This British Standard specifies the requirements for shuttle woven cotton webbing in a range of widths for aerospace purposes.

NOTE The latest revision of an Aerospace Series standard is indicated by a prefix number.

2 Information and requirements to be agreed and documented

The following information to be supplied by the purchaser shall be fully documented. For compliance with the standard both the definitive requirements specified throughout the standard and the following documented items shall be satisfied.

a) the number of this British Standard i.e. BS 6F 49;

b) the method of weaving (see Clause **6**);

c) the type of finish required (see **7.1**);

d) the colour, if required dyed (see **7.3**);

e) the width required (see Clause **8**).

3 Terms and definitions

For the purposes of this British Standard, the following terms and definitions apply.

3.1 protective treatment
product containing a 50:50 blend of (±)-1-((2-(2,4-dil)-4-propyl-1, 3-dioxolan-2-yl) methyl)-1H-1,2,4-triazole and 3-iodo-2-propynyl-butyl carbamate, applied at 0.4% – 0.8% combined actives on weight of fibre

NOTE An example product is Mystox R™.[1)] For a relative test method see Annex A.

4 General requirements

In addition to the requirements specified in Clauses **5** to **9**, the following sections and clauses of the latest edition of BS F 100 shall apply (see Table 1).

5 Yarn

The yarn shall be unsized cotton yarns of nominal linear densities as follows.

- Warp: 3 ply yarn of resultant linear density 150 tex.
- Weft: 3 ply yarn of resultant linear density 90 tex.

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1) Mystox R is proprietary to Catomance Ltd. This information is given for the convenience of users of this standard and does not constitute an endorsement by BSI of the product named. Equivalent products may be used if they can be shown to lead to the same results.

6 Manufacture of webbing

1) The weave shall be 2/2 V twill.

2) The webbing shall be woven on shuttle looms.

3) The webbing shall have an orange identifying yarn positioned centrally down the webbing and this shall be included in the total warp ends.

Table 1 **General requirements (given in BS F 100)**

Section	Title	Requirements and tests
2	Quality requirements	Requirements for manufacture of narrow fabrics
		Requirements for dimensions and tolerances
		Requirements for dyed textiles except those related to fabric intended for coating
		Requirements for freedom from corrosive impurities [A)] (see section 4)
		Requirements for freedom from defects of woven narrow fabrics
3	Physical tests	Test for the determination of the number of threads per unit length in fabrics
		Test for the determination of the mass of fabrics
		Test for breaking strength and extension under load
4	Chemical tests	If required by section 2:
		test for conductivity of aqueous extract test for pH value of aqueous extract test for water soluble chloride test for water soluble sulphate

[A)] Applies to scoured, dyed or rotproofed fabrics only complying with items b) and c) of **6.1**.

7 Finish

7.1 Condition of material

The webbing shall be supplied in one of the following conditions.

a) loomstate

b) scoured and rotproofed

c) scoured, dyed and rotproofed.

NOTE The finish required should be stated in the contract or order.

7.2 Rotproofing

Where the webbing is to be supplied rotproofed, the webbing or the yarns from which it is woven shall be treated with a protective treatment as described in **3.1**.

7.3 Dyeing

7.3.1 Where dyeing is required, either the webbing or the yarns from which it is woven shall be dyed.

7.3.2 Where dyeing is required, the colour shall be specified by reference to a British Standard, e.g. BS 381C, or otherwise by pattern.

NOTE The colour required should be stated in the contract or order.

8 Construction and properties

The webbing in the condition as supplied shall comply with the requirements of Table 2.

NOTE 1 The width required should be stated in the contract or order.

NOTE 2 Obsolescent widths for use on existing equipment are quoted in Annex B.

Table 2 **Construction and properties of webbing with widths used in new designs**

Width mm	**Number of ends in width** [A)]	**Max. mass per unit length** g/m	**Min. breaking strength** N	**Number of picks per centimetre**
10	30	6.5	440	
20	56	13.0	845	
25	74	17.0	1 100	
30	90	20.0	1 300	
40	116	27.0	1 750	12 ± 0.5
45	130	29.0	1 950	
50	148	33.0	2 200	
75	222	50.0	3 350	
100	294	66.0	4 450	

[A)] Tolerance $^{+4}_{-0}$.

9 Identification

The webbing shall be identified by the number of this British Standard, i.e. BS 6F 49,[2)] together with the width and, where required, the colour and rotproofing requirements.

NOTE This identification may be codified. For example, 50 mm wide webbing dyed olive drab and a rotproofed product containing a protective treatment may be identified as BS 5F 49/50 mm/BS 381C No. 298/.

[2)] Marking BS 6F 49:2007 on or in relation to a product represents a manufacturer's declaration of conformity, i.e. a claim by or on behalf of the manufacturer that the product meets the requirements of the standard. The accuracy of the claim is solely the claimant's responsibility. Such a declaration is not to be confused with third-party certification of conformity.

Annex A (informative) The determination of Mystox IP on fabric

A.1 Application

To fabrics treated with products containing Mystox IP such as Mystox R, Mystox WR and Mystox IP itself.

A.2 Apparatus

HPLC fitted with Lichrosorb RP18 column 10 cm x 4.6 mm ID, detector set at 230 nm UV pump at 2 ml/min.

Absorbance 8 × 0.01 integrator to measure peak areas and retention times.

HPLC 560 autosampler.

2 ml glass vials with PTFE seals and screw caps.

Ultrasonic bath set at 75 °C.

0.45 µ syringe filters.

Calibrated stopwatch.

Grade A pipettes.

A.3 Reagents

Acetonitrile HPLC.

Methanol HPLC.

0.05% ammonium carbonate solution.

Elution solvent: 50 vol. acetonitrile + 50 vol.

0.05% ammonium carbonate solution (mix well before use).

A.4 Methods

For UKAS accredited tests, ensure two replicate samples are prepared and the fabric is conditioned for 24 hours prior to the test at 20 °C ± 2 °C and 65% ± 2% RH.

Into a 22 ml reaction vessel weigh 0.500 ± 0.005 g diced fabric using a four-figure analytical balance, and whose calibration check is ± 0.003 g of the stated calibration weight.

Place pipette in 10 ml of methanol and cap (teflon side down). Wrap PTFE tape around the threads of the bottle and screw cap on securely. Heat the water in the ultrasonic bath. Check the temperature and when it is 75 °C ± 2 °C place the reaction tubes in the bath. Switch on the ultrasonic generator and sonicate for 15 min against a calibrated stopwatch. At the end of this time transfer the vials to a cold water bath for rapid cooling.

Filter the extracts through a 0.45 µ syringe filter into a screw-top glass vial pending HPLC analysis. Wash out the syringe with methonol between samples; do not re-use the methanol. Dispose of the syringe using an environmentally acceptable method.

Wash glassware. Dry and return to the analytical laboratory.

A.5 Standardization

Prepare a strong stock propiconazole containing (10 ÷ Assay %) grams of laboratory analysed standard to 100 ml total volume in methanol. This stock is stable for at least three months when stored in a refrigerator. It contains 0.1% propiconazole.

On the day of use prepare sub-dilution of 1 ml stock to 10 ml methanol – this is a 100 mg/L standard.

A.6 Analysis

Switch on the HPLC and associated equipment for ½ hr to stabilize – using elution solvent. Set up and run queue for propiconazole analysis (method 5-13). Program and start autosampler. Record the RT and peak areas for the standard (A_S).

Inject each sample twice and obtain the mean sum for peak areas (A_T).

Follow method 5-12 – cleaning procedure for HPLC column. This should be carried out at the discretion of the user if cleaning is thought necessary. Warning signs that cleaning is required include peak splitting, poor peak resolution and baseline variablility.

A.7 Calculation

$$\text{Mystox IP \%} = 0.01 \times \frac{A_T}{A_S} \times \frac{10}{\text{sample weight}} \times 4$$

Annex B (informative) Obsolescent widths

The obsolescent widths quoted in Table B.1 should be used only for existing equipment.

Table B.1 **Construction and properties of obsolescent widths**

Width mm	**Number of ends in width** [A)]	**Max. mass per unit length** g/m	**Min. breaking strength** N	**Number of picks per centimetre**
13	38	8.3	535	12 ± 0.5
38	112	27.0	1 650	12 ± 0.5

[A)] Tolerance $^{+4}_{-0}$.

Bibliography

For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS F 100, *Procedure for inspection and testing of textiles*.

BS 381C, *Specification for colours for identification, coding and special purposes*.

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