Contents

Foreword

The characteristic of drape of fabric is complex, and this standard provides a simple method of measuring this property from the deformation by gravity of an initially horizontal annular ring of fabric. A measure of drape is obtained as a single number with a theoretical maximum of 100 and minimum of zero. The specimen deforms with multi-directional curvature and the result is, therefore, dependent upon the shear stiffness of the fabric in addition to the bending stiffness.

The procedure may be used for measuring the effect of variables of fabric construction and finish, for the control of batches and deliveries and for quality control.

A paper on the reproducibility of the method was published in 'Textile Institute and Industry', January 1972.

British Standard Method for

The assessment of drape of fabrics

1. Scope

This British Standard describes a method of test for the assessment of drape of fabrics, and is applicable to all fabrics intended for end uses in which drape is important.

NOTE. The title of the British Standard referred to in this standard is given on the inside back cover.

2. Principle

A circular fabric specimen is held concentrically between smaller horizontal discs, and an annular ring of fabric is allowed to drape into folds around the lower supporting disc. The shadow of the draped specimen is cast onto an annular ring of paper of the same size as the unsupported part of the fabric specimen. The outline of the shadow is traced onto the ring of paper, the mass of which is then determined. The paper is then cut along the trace of the shadow and the mass of the inner part representing the shadow is determined. The drape coefficient is calculated from the two masses.

3. Definitions

For the purposes of this British Standard the following definitions apply:

(1) *Fabric drape.* The extent to which a fabric will deform when it is allowed to hang under its own weight.

(2) *Drape coefficient.* The percentage of the total area of an annular ring of fabric obtained by vertically projecting the shadow of the draped specimen.

4. Apparatus

The following apparatus is required:

(1) *A test apparatus* consisting of:

a. two horizontal discs of diameter 18 cm between which the specimen is held, the lower disc having a central locating pin,

b. a point source of light positioned centrally beneath the discs and at the focus of a concave parabolic mirror which reflects parallel light vertically upwards and so casts a shadow of the draped annular ring of fabric onto an annular ring of paper placed centrally above the discs on the lid of the instrument and

c. a centre plate on the lid to locate the paper ring.

(See Appendix A and Fig. 1.)

Other apparatus giving results similar to those obtained using the above apparatus may be used.

(2) *Three circular templates* suitably adapted to facilitate marking the centre of the test specimen.

Template A	24 cm diameter
Template B	30 cm diameter
Template C	36 cm diameter

(3) *Annular rings of translucent paper,* of internal diameter 18 cm and external diameter equal to the diameter of the test specimen. (These may be obtained from the manufacturer of the apparatus described in (1).)

(4) *Balance* capable of determining mass to an accuracy of 0.01 g.

5. Conditioning and testing atmosphere

The atmosphere required for conditioning and testing is the standard atmosphere for testing textiles as specified in BS 1051, i.e. a relative humidity of 65 ± 2% and a temperature of 20 ± 2 °C.

6. Preparation of test specimens

6.1 Conditioning. Condition the fabric to be tested for at least 24 hours in the atmosphere specified in Clause 5.

6.1 Selection of template. Select the appropriate template for the fabric under test.

NOTE. The following information on appropriate template diameters is given for guidance:

(1) diameter 24 cm for limp fabrics, i.e. those producing a drape coefficient below approximately 30 % with template of diameter 30 cm;

(2) diameter 30 cm for medium fabrics;

(3) diameter 36 cm for stiff fabrics, i.e. those producing a drape coefficient above approximately 85 % with template of diameter 30 cm.

Results using test specimens of different diameters are not directly comparable.

6.3 Marking and cutting. Place the fabric free from creases on a flat horizontal surface and by means of a template trace the specimens, mark the centre of each, and cut them out. Ensure that the specimens represent adequately the fabric under test.

6.4 Number. Take at least two test specimens.

7. Test procedure

7.1 Testing atmosphere. Conduct the procedure in the standard atmosphere for testing textiles specified in Clause 5.

7.2 Checking the drape test apparatus

7.2.1 Ensure that the centre plate on the lid is horizontal, making adjustments by means of levelling feet in the base or other suitable means. Switch on the light.

7.2.2 Ensure that the filament of the lamp is at the focus of the parabolic mirror, by placing a paper ring of diameter 30 cm centrally on the annular support disc of the apparatus. A centrally situated shadow of diameter 30 cm should be cast on a 36 cm diameter annular ring placed in position on the lowered lid of the apparatus.

7.3 Detailed procedure

7.3.1 Place the specimen on the lower horizontal disc of the apparatus so that the pin passes through the centre of the specimen. Then position the top disc on the specimen with the pin fitting into the hole in the top disc.

7.3.2 Lower the lid of the apparatus.

7.3.3 Place an annular ring of paper (Clause 4(3)), of the same outside diameter as the test specimen, on the lid.

7.3.4 Switch on the light and without delay draw around the periphery of the shadow on the paper ring.

7.3.5 Remove the paper ring and fold it so that the mass can be determined. Determine the mass of the paper ring to the nearest 0.01 g (M_1).

7.3.6 Cut the paper ring around the periphery of the shadow which was drawn on the paper and discard the area of the paper ring which was not shaded.

7.3.7 Determine the mass of the residual portion of the paper ring to the nearest 0.01 g (M_2).

7.3.8 Repeat the procedure from 7.3.1 to 7.3.7, on the same specimen but with the other surface uppermost.

7.4 Number of tests

7.4.1 Carry out twice more the procedure described in 7.3, making a total of six measurements on the same specimen.

7.4.2 Test the second specimen as described in 7.3 and 7.4.1.

8. Calculation and expression of results

8.1 Calculate the drape coefficient for each test as follows:

$$\text{Drape coefficient} = \frac{M_2 \times 100}{M_1}$$

where M_1 = total mass of the paper ring, and
M_2 = mass of the shaded area of the paper ring.

8.2 Calculate the mean drape coefficient.

9. Test report

The report shall state:

(1) that the procedure was conducted in accordance with this British Standard;

(2) the diameter of the test specimen;

(3) the number of specimens tested, and

(4) the drape coefficient for each test and the mean drape coefficient.

Appendix A

Apparatus

A.1 Apparatus to meet the requirements of Clause 4(1) can be obtained from:

Web Processing Limited
Pownall Hall Farm
Wilmslow
Cheshire

A.2 Apparatus formerly supplied by Rotrakote is also suitable.

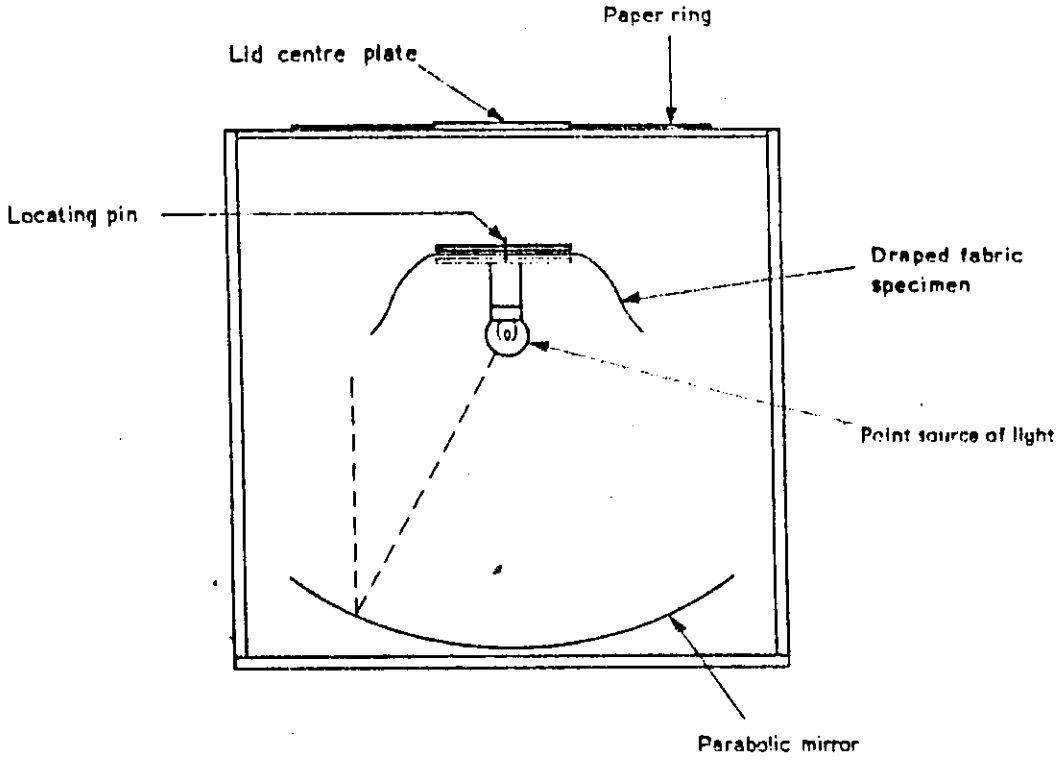

Fig. 1. Section through the test apparatus