

**Pillows for domestic use — Specification**

Part 2:

**Synthetic-fibre filled**

**Public review Draft**

## DKS 1267-2: 2019

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# **Pillows for domestic use — Specification**

Part 2:

## **Synthetic-fibre filled**

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## Foreword

This Kenya Standard was prepared by the Mattresses Technical Committee under the guidance of the Standard Projects Committee, and it is in accordance with the procedures of the Kenya Bureau of Standards.

This standard gives the requirements for pillows that are filled with synthetic fibres. The main fibre in use is polyester but some manufacturers have been known to fill with a mix of different fibres. It is necessary to determine the filler material because some people are sensitive to synthetic fibres.

The following are the changes incorporated in this Third edition of this standard:

- i) Table 1 has been updated and test methods reviewed in accordance with ISO test methods.
- ii) In Clause 4.3,4.4, the stated test procedures have been reviewed
- iii) Annex C on mass per unit area for synthetic filling introduced to the standard
- iv) The test procedure in annex A on mass per unit area of casing fabric has been reviewed

During the preparation of this standard, reference was made to the following documents:

- SABS 1394-2: 2003, Specification for duvets and pillows — Part 2: Synthetic fibre filled.
- SABS 79:2004, Mass per unit area of conditioned fabrics

Acknowledgement is hereby made for the assistance derived from the source.

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## Pillows for domestic use — Specification

Part 2:

### Synthetic-fibre filled

#### 1 Scope

This Kenya Standard covers the requirements of synthetic-fibre filled pillow for domestic use.

#### 2 Normative references

This Kenya Standard incorporates by dated or undated references, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter.

For dated references, subsequent amendments to or revisions of these publications apply to this Kenya Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

KS 68, *Textile care labelling code*

KS ISO 13934-1, *Textile — Tensile properties of fabrics — Part 1: Determination of maximum force and elongation at maximum force using the strip method*

EAS 237, *Methods for the determination of colour fastness of textile materials to washing*

EAS 236, *Method for determination of colour fastness of textile materials to dry cleaning*

KS ISO 1833 (Series of standards) *Textiles — Quantitative chemical analysis*

KS 438, *Method for determination of pilling resistance of fabrics (brush pilling tester)*

KS 32, *Conditions for the testing of textile*

KS 264, *Methods for estimation of moisture, total size or finish, ash, fatty matter and determination of water soluble matter in textiles*

#### 3 Definition

For the purposes of this standard, the following definitions shall apply:

##### 3.1

##### acceptable

acceptable to Kenya Standards

##### 3.2

##### casing

the textile fabric envelope that contains the filling

##### 3.3

##### filling filler

the insulating material within the casing of a pillow

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### 3.4

#### **gauge (stitch-bond fabric)**

the number of row of stitches per 25 mm width of fabric

### 3.5

#### **nominal**

subject to the relevant tolerances of  $\pm 3$  % given in the regulatory provision of the Trade Metrology Regulations

### 3.6

#### **outer cover**

a textile fabric envelop that contains a pillow and that is easily removable for cleaning purposes

## 4 Requirements for pillows

### 4.1 General

Pillows shall be

- a) Cut and made with first-class workmanship throughout.
- b) Free from defects that could affect their appearance or their serviceability (both).
- c) Made such that all seams are smooth and all sewing is free from twists, pleats and puckers, and sufficiently extensible to prevent seam-cracking and undue shrinkage in use.
- d) Made such that all ends of sewing have been trimmed and loose threads removed.
- e) Made such that ends of sewing that are not secured in seams or in other sewing are adequately backstitched.
- f) Made of uniform, acceptable colour and finish.
- g) Capable of being cleaned in accordance with the care instructions, without giving rise to any defect, such as puckering, lumpiness, tears, etc.
- h) Delivered in a clean and commercially dry condition.

### 4.2 Materials and components

#### 4.2.1 Casing fabric

The casing fabric shall either be a woven fabric or a stitch-bond fabric of at least 14 gauge that complies with the appropriate requirements given in Table 1.

#### 4.2.2 Synthetic-fibre filling

The synthetic fibre filling shall, when tested in accordance with KS ISO 1833 consist entirely of clean, crimped continuous filaments or staple synthetic fibres. The length of staple fibres shall be at least 30 mm (Annex E). The fibres shall be thermo bonded or resin-bonded and the blend of melting fibres shall not exceed 30 %.

#### 4.2.3 Sewing thread

Any appropriate type of sewing thread may be used, provided that the minimum breaking strength of the thread is at least 8 N. The colour of the sewing thread shall be such as to be acceptable.

Table 1 — Casing fabric requirements

1	2	3
Property	Requirements	Test method
Fibre composition, %	Shall comply with the stated <sup>a)</sup> composition	B.4.1
Mass per unit area <sup>a)</sup> , g/m <sup>2</sup> , min.	90	Annex A
<b>Breaking strength<sup>b)</sup> N, min.</b>		
Warp	350	KS ISO 13934
Weft	200	
Resistance to opening at seams <sup>c)</sup> , N, min.	65	Annex D
<b>Colour fastness to:</b>		
a) Washing <sup>d)</sup>		KS ISO 105-C10
Change in colour, rating, min.	4	
Staining of transfer cloths, rating, min.	4	
b) Dry-cleaning <sup>d)</sup>		KS ISO 105-D01
Change in colour, rating, min.	4	
Staining of transfer cloths, rating, min.	4	

<sup>a)</sup> As stated on the label (see 5.2.1 c)), subject to tolerance of  $\pm 3\%$  of the indicated value in the case of blended fabrics.

<sup>b)</sup> Application to non-woven fabrics only.

<sup>c)</sup> Applicable to woven fabrics only.

<sup>d)</sup> Applicable only as indicated by the care instructions (see 5.2.1 d)).

### 4.3 Finished dimensions

Unless otherwise specified, the nominal dimensions of the made-up pillow shall be one of the combinations given in Table 3, Columns 2 and 3. The actual dimensions, determined in accordance Clause B.3, shall be equivalent to the stated dimensions, subject to the relevant tolerance given in the Trade Metrology Regulations.

Table 3 — Unfilled casing dimensions

1	2	3
Pillow size	Dimensions, cm	
	Width	Length
Baby	30	40
Standard	45	70
Continental	80	80

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### 4.4 Construction

A pillow shall consist of a casing made from one piece of fabric (or from two equally size pieces of fabric) enclosing a synthetic-fibre filling. The mass per unit area of the filling (including the surface stabilizer), tested in accordance with Annex C, shall be at least 1250 g/m<sup>2</sup> for baby pillows and at least 1 450 g/m<sup>2</sup> for the other sizes.

### 4.5 Stitches and seams

4.5.1 Stitches shall be of the following types —

- a) Stitch type:
  - 1) binding: Stitch type 301 or 401;
  - 2) edge-overlocking: Stitch type 505 or 502; and
  - 3) all other stitching: Stitch type 301; and
- b) Number of stitches per 10 cm: At least 24 per 10 cm.

### 4.5.2 Seams

Seams shall comply with the following requirements:

- a) General: Edge-over locked closing seams of seam type SSc-1 shall be of width at east 4 mm. All other seams shall be of width at least 8 mm.
- b) Closing seams: Seam type SSc-a, BSc-1, SSa-1, SSc-2 or SSc-1.

## 5 Packing marking

### 5.1 Packing

Unless otherwise required, pillows shall be wrapped individually in an acceptable wrapper and then packed in a suitable bulk container. Unless the quantities ordered are such that packing of the same colour of casing and nominal dimensions is not justified, only pillows of the same colour of casing and nominal dimension and that contain the same type of filling shall be packed together in a bulk container.

### 5.2 Marking

#### 5.2.1 Pillows

The following information shall appear in legible and indelible marking on label securely attached to an edge of, or on top (near one of the corners) of each pillow:

- a) the manufacturer's name or trade mark or both;
- b) the nominal dimensions, in centimetres;
- c) the composition of the casing fabric and of the filling, for example; Casing fabric: All cotton; filling polyester fibre;
- d) care instruction in accordance to KS ISO 3758
- e) The declaration made in Kenya or country of origin.

#### 5.2.2 Bulk containers

The following information shall appear in legible and indelible marking on the outside of each bulk container:



- a) the information required in 5.2.1;
- b) a description of the contents;
- c) the quantity of pillows.

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Annex A  
(Normative)

Mass per unit area of casing fabric

**A.1 Principle**

This method specifies the procedures for determining the mass per unit area of woven fabrics (including those of the stretch type), knitted fabrics, nonwoven fabrics, composite fabrics and narrow fabrics.

**A.2 Apparatus**

Table, that has a smooth flat surface and is of a size that exceeds that of the fabric to be measured.  
Cutter, that is capable of cutting a square or circular specimen of area,  $0,01\text{m}^2$  to an accuracy of 1% or better.  
Metal plate, that is 5mm smaller than the cutter and that has a thickness of 10mm.  
Balance, that is capable of determining the mass of the specimen to an accuracy of 0,2% or, in the case of  $0,01\text{m}^2$  specimens, to an accuracy of 0,001g.

**A.3 General**

Condition the sample in accordance to KS ISO 139

**A.4 Procedure 1: Full width specimen**

Ensure that the fabric, which should preferably be selected from the middle of a piece, is not less than 0,5 m and not more than 4 m long, and lay it flat, and without tension, on the table. Cut at both ends, across the full width of the sample, along parallel lines at right angles to the selvedge. If the mass per unit area of a selvedge on a full-width piece appears to deviate appreciably from the mass per area of the body of the fabric, or if so agree upon between the parties concerned, trim off the selvedge along the outermost threads of the body of the fabric and use only the body of the fabric for the determination of the mass per unit area. Measure the width and length of the specimen, using KS 814

**A.5 Procedure 2: for representative for large cuttings**

Ensure that available cutting is representative of the sample. Trim the cutting into a square or rectangle specimen by cutting along parallel lines at right angles to the warp (length) direction and at right angles to the weft (width) direction.

Measure the width and length of the specimen, using KS 814

Use the balance to determine the mass of the specimen

**A.6 Procedure 3: for several small ( $0,01\text{m}^2$ ) specimens**

NOTE On fabrics with large in woven designs, which involve local areas of appreciably different mass per unit area, the use of procedure 2 is preferable.

**A.6.1** Cut at least three square pieces, of side length of approximately 150mm, from areas of the fabric selected to represent the samples as fully as possible but not within 50mm of the selvedge.

**A.6.2** Lay each piece flat, and without tension, on a suitable cutting surface. Place the metal plate and cutter on each piece in turn and cut out a  $0,01\text{m}^2$  specimen from each piece, ensuring that no loss of threads occurs.

Use the balance to determine the mass of the  $0,01\text{m}^2$  specimens, and calculate the mean mass

## A.7 Calculation

**A.7.1** In the case of procedure 1 and procedure 2, calculate the mass per unit area  $M$  in grams per square metre, using the following formula:

$$M = \frac{m \times 1\,000\,000}{L \times w}$$

Where

$m$  is the mass of the specimen, in grams  
 $L$  is the length of the specimen, in millimetres; and  
 $w$  is the width of the specimen, in millimetres

**A.7.2** In the case of procedure 3, calculate the mass per unit area ( $M$  in grams per square metre) by multiplying the mean mass (in grams) by 100.

## Annex B (normative) Inspection

### B.1 Pillows

After checking for compliance with the relevant requirements given in Clause 4, visually examine each pillow in the sample for compliance with the requirements of 3.1 and 3.5.

### B.2 Conditioning

The fabric should be conditioned according to KS ISO 139

#### B.2.1 Pillows

After carrying out the test given in Clause B.3, cut from the samples the test specimens required for the test given in Annex C and fibre composition test in table 1. In the case of the casing fabric, cut from the sample (see Note Clause 4.4) the test specimens required for the test given in Clause B.4

### B.3 Finished dimensions

**B.3.1** Lay the pillow flat on a plain surface. Gently pat the pillow (without subjecting it to tension) with the hands until it is free from all storage folds and wrinkles.

**B.3.2** Use an accurately graduated steel tape of length greater than the length of the pillow to determine, to the nearest 1 cm, at approximately three equal intervals in each direction, the width and the length of the pillow.

**B.3.3** Calculate the arithmetic mean of each set of measurements and record the results as the width and the length, respectively, of the pillow.

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**B.3.4** Check for compliance with 4.3

### **B.4 Properties of casing fabrics**

NOTE Testing for compliance with the fabric requirements given in table 1 requires a length of at least 1m, full width, of the casing fabric.

#### **B.4.1 Composition**

Determine the composition of casing fabrics by chemical analysis in accordance to KS ISO 1833

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**Annex C**  
(normative)

**mass per unit area of synthetic –fibre filling**

**C.1** Determine, in grams, the mass of the finished pillow and calculate, in grams per square metre, the mass per unit area from the mass of the pillow and its dimensions (see B.3)

**C.2** Determine, in grams per square metre, the mass per unit area of the casing fabric. If a separate sample of the fabric is available, use annex A. If a separate sample of the casing fabric is not available, cut a suitably sized specimen of the fabric from the pillow, remove any filling adhering to the inner surface of the casing fabric, and then use annex A

**C.3** Calculate the mass per unit area of the filling,  $M_f$ , using the following formula:

$$M_f = A - 2B$$

where

$A$  is the mass per unit area of the pillow, in grams per square metre; and

$B$  is the mass per unit area of the casing fabric, in grams per square metre.

NOTE The mass per unit area of the casing fabric is doubled to make allowance for the upper and lower surfaces of the casing.

**C.4** Check for compliance with clause 4.4.

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Annex D  
(normative)

Resistance to opening at seams

D.1 Apparatus and materials

D.1.1 Sewing thread, core-spun with a polyester core and cotton sheath of ticket No. 80 and ticket No. 50 (see Table 1)

Table D.1 — Requirements for stitching

1	2	3	4
Mass per area of test specimen $g/m^2$	Sewing thread ticket No.	Sewing machine needle size Metric (imperial)	Stitch rating Number of stitches per 10cm
< 250	80	90 (No. 14)	50 ± 2
≥ 250	50	100 (No. 16)	40 ± 2

D.1.2 Sewing machine needles of size 90 (No. 14) and size 100 (No. 16), examine the points of the sewing machine needle for signs of damage.

D.1.3 Sewing machine, electrically operated, single-needle, lock-stitch, capable of producing stitch type 301 and provided with the appropriate throat-plate(s) and feed-dog(s) for use with the sewing threads.

D.1.4 CRE tensile-strength testing machine, that is capable of constant rate of extension of 100mm/min, fitted with jaws.

D.1.4.1 Of a type that will not weaken the test specimen during test and such that each jaw has a front face of size 25 mm x 25 mm and a back face of size at least 25 mm x 40 mm, the longer dimension being at right angles to the direction of the applied load.

D.1.5 Transparent template, of size approximately 125 mm x 30 mm ruled with three lengthways and parallel lines, the clear distance between adjacent lines being 3 mm ± 0.05 mm.

D.2 Sampling and preparation of test specimens

D.2.1 Take a laboratory sample as specified in the relevant product specification.

D.2.3 From the conditioned laboratory sample, cut 10 test specimens, each of approximately 200 mm x 75 mm, so that in five of the test specimens the longitudinal yarns are warp yarns and in the other five test specimens the longitudinal yarns are weft yarns.

D.2.4 Cut the two sets of test specimens so that their longitudinal yarns all represent different threads and, if possible, different portions of the warp and the weft respectively. Do not cut any warp-direction test specimen closer to a selvedge than 8 mm.

D.2.5 Select the sewing thread and the sewing machine needle size appropriate to the mass per area of the test specimen (see Table D.1) and fit the corresponding throat-plate and feed dog to the sewing machine.

D.2.6 Fold each test specimen in half by placing the two shorter ends together and while maintaining a constantly sewing speed, sew a row of stitches parallel to and at a distance of 15 mm from the fold at the stitch rating (see Table D.1) appropriate, to the mass per area of the test specimen.

D.2.7 Cut each test specimen on the fold and parallel to the line of stitching so as to provide a seam of width approximately 1 mm.

### D.3 Procedure

**D.3.1** Clamp a test specimen symmetrically in the jaws of the CRE tensile-strength testing machine with the seam midway between and parallel to the edges of the jaws so that the free distance between the jaws at the start of the test is 75 mm.

**D.3.2** Hold the transparent template in front of the clamped test specimen so that its centre line is parallel to the line of stitching at the seam of the clamped test specimen and set the CRE tensile-strength testing machine in motion.

**D.3.3** Stop the CRE tensile-strength testing machine and record the load, in newtons, when

**D.3.3.1** Any part of the opening of the seam reaches a width of 6 mm (reduced to 32 mm in the case of test specimens that have warp threads and weft threads of contrasting colours).

**D.3.3.2** A failure owing to the breakdown of the fabric or sewing thread occurs, whichever occurs first

**D.4** Repeat D 3.1 to D 3.3 (inclusive) until all 10 test specimens have been tested.

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**Annex E**  
(normative)

**Determination of fibre length**

**H.1 Apparatus and materials**

**H.1.1 Polished glass plate**, with millimetre scale engraved or photographed on it.

**H.1.2 Pointed forceps**

**H.1.3 White petroleum jelly or liquid paraffin**

**H.2 Procedure**

**H.2.1** Measure the fibre length of individual fibres on a graduated glass plate.

**H.2.1.1.** Smear the glass plate with a small quantity of the white petroleum jelly or liquid paraffin. Using the forceps arrange a fibre in a straight line on the glass plate and along the scale, keeping it straight by applying a minimum tension at its two extremities. Measure the length of the fibre along the scale. Repeat the operation for each fibre to be tested.

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