

## **Socks — Specification**

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## **Socks — Specification**

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## Foreword

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

A variety of socks are manufactured locally from a variety of textile fibres mainly nylon, polyester, wool, acrylic, cotton and their blends. This standard is intended to harmonize socks sizes and stipulate minimum quality requirements for socks of the specified sizes.

This fourth edition cancels and replaces the Third edition (KS 583:2017) which has been technically revised.

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

IS 5084:1990, Socks, nylon — Specification.

SLS 400:1976, Specification for nylon stretch socks.

Acknowledgement is hereby made for the assistance received from these sources.



## Socks — Specification

### 1 Scope

This Kenya Standard specifies the quality and other requirements for seamless socks knitted in plain, rib or fancy stitches.

### 2 Application

This standard applies to seamless socks manufactured from nylon, polyester, wool, acrylic, cotton and/or their various blends.

### 3 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

KS 207-2, *Glossary of textile terms pertaining to defects in fabrics Part 2: Knitted fabrics*

KS 415, *Glossary of terms relating to hosiery*

KS 1113, *Specification for staple yarns*

KS 1114, *Specification for textured filament yarns*

KS 2062, *Textiles — Yarns from packages — Determination of single end breaking force and elongation at break using constant rate of extension (CRE) tester-to be replace*

KS 2659, *Packaging of textile products — Code of practice*

KS ISO 105 C10, *Textiles — Colour fastness Part C10: Colour fastness to washing with soap or soap with soda*

KS ISO 105 B02, *Textiles — Tests for colour fastness Part B02: Colour fastness to artificial light, Xenon arc fading lamp*

KS ISO 105 N02, *Textiles — Tests for colour fastness Part N02: Colour fastness to peroxide washing*

KS ISO 105 X12, *Textiles — Tests for colour fastness Part X12: Colour fastness to rubbing*

KS ISO 139, *Textiles — Standard atmospheres for conditioning and testing*

KS ISO 1833 series *Textiles — Quantitative chemical analysis*

KS ISO 7211-5, *Textiles — woven fabrics construction — Determination of linear density of yarn removed from fabric by skein method*

KS ISO 2061, *Textiles — Determination of twist in yarns — Direct counting method*

KS ISO 2076, *Textiles — Man-made fibres — Generic names*

KS ISO 11827 *Textiles- Composition testing- Identification of fibres*

## KS 583: 2020

KS ISO 3758, *Textiles — Care labeling code using symbols*

KS ISO 6938, *Textiles — Natural fibres — Generic names and definitions*

KS ISO 8388, *Knitted fabrics — Types — Vocabulary*

KS ISO 11827, *Textiles — Composition testing — Identification of fibres*

KS ISO 14632-1, *Textiles — Method for determination of certain aromatic amines derived from azo colorants*  
*Part 1: Detection of the use of certain azo colorants accessible with and without extracting the fibres*

KS ISO 14632-3, *Textiles — Method for determination of certain aromatic amines derived from azo colorants*  
*Part 3: Detection of the use of the use of certain azo colorants which may release 4-aminoazobenzene*

KS ISO 16373, *Dyestuff*

*Part 1: General principles of testing coloured textiles for dyestuff identification*

*Part 2: General method for the determination of extracted dyestuffs including allergenic and carcinogenic dyestuffs (method using pyridine-water)*

*Part 3: Method for determination of certain carcinogenic dyestuffs (method using triethylamine-methanol)*

KS ISO 16549, *Textiles — Unevenness of textile strands Capacitance method*

KS ISO 105 E04, *Textiles — Tests for colour fastness — Part E04: Colour fastness to perspiration*

## 4 Definitions

For the purposes of this standard, the definitions given in KS 415 and the following shall apply.

### 4.1

#### **foot length**

the distance from the tip of the toe to the apex of the heel, that is the distance between C and O (Figure 1)  
rib length

### 4.2

#### **leg length**

the distance from the top of the socks to the apex of the heel, that is the distance between A and O (Figure 1)

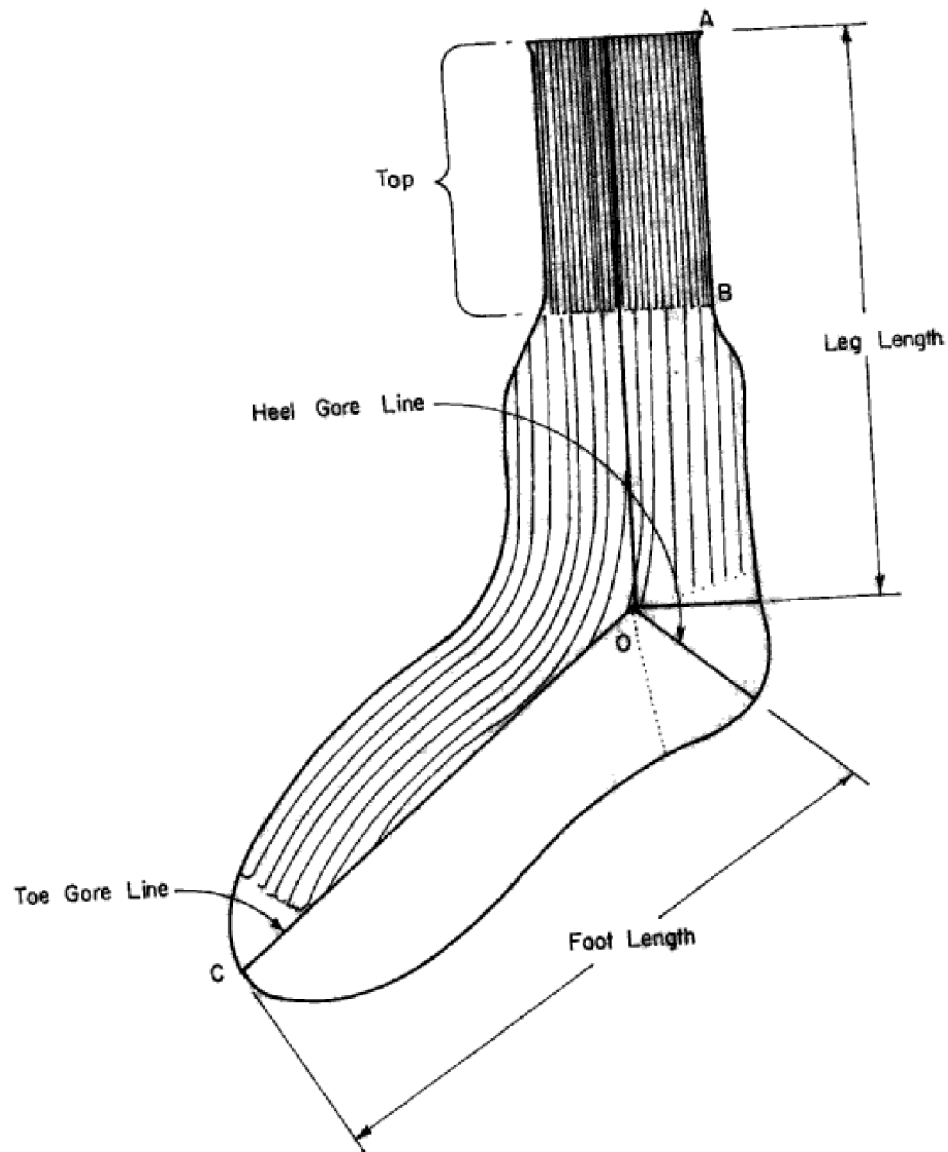
### 4.3

#### **a batch of socks**

for the purpose of this standard, a batch of socks shall mean more than one pair of socks of the same type and size packed together

4.4 Socks —The socks which are worn below the knee and above the ankle. These include crew socks and ankle socks





Foot length – Distance from C to O.

Leg length – Distance from A to O.

**Figure 1 — Sock**

## 5 Types

Depending upon the pattern of stitches, socks shall be of any one of the following three types:

- a) Plain-knitted;
- b) Rib-knitted; or
- c) Fancy-knitted
- d) Terry knitted

**6 Requirements****6.1 Fibre composition and proportion**

The socks shall be manufactured from yarns made from textiles fibres described in KS ISO 6938 and KS ISO 2076. The fibre composition and proportion of the textile fibres shall be tested and calculated in accordance with KS ISO 11827 and KS ISO 1833, 1-28. Where the yarns used is a blend of two or more fibres, the fibre composition and proportion shall be as declared with a maximum tolerance of  $\pm 5\%$ .

**6.2 Yarns**

The yarns used shall comply with the requirements of KS 1113 and KS 1114 including the following characteristics:

**6.2.1 Breaking tenacity**

The breaking tenacity of the yarns used to knit the socks, calculated as a ratio of the breaking strength to linear density in accordance with ISO 2062 shall be as given in Table 1.

**6.2.2.1 Linear density**

The yarn linear density used to calculate the tenacity shall be determined from a yarn from the socks in accordance with KS ISO 7211-5

**6.2.2 Elongation**

The elongation of the yarns tested at break shall be as given in Table 1.

**6.2.4 3 Unevenness**

The yarn unevenness of a single yarn when tested from a package in accordance with KS ISO 16549 shall comply with the requirements of Table 2.

**6.2.5 Twist****6.2.5.1 Direction**

The twist direction of the yarns shall be designated as either 'S' or 'Z'.

**6.2.5.2 Coefficient of variation**

The coefficient of variation, % of the yarn twist shall not be more than 5% when tested in accordance with KS ISO 2061.

**Table 1 —Tenacity and elongation requirements of yarns for socks**

S/N	Yarn type	Requirements	
		Minimum tenacity g/tex	Elongation at break %, min.
i)	Nylon 6 and 6,6	35.0	30.0
ii)	Polyester	32.0	27.0
iii)	Wool	28.0	20.0

iv)	Acrylic	25.0	17.0
v)	Cotton	30.0	5.0
vi)	Blends (See note)		
vii)	Elastic yarn for top portion of the sock		> 450
<b>Test Method</b>	KS ISO 2076, KS ISO 11827 and KS ISO 1833,1,2,7,11,12,20,24 & 25	ISO 2062	ISO 2062

NOTE The ratings of minimum tenacity (g/tex) and elongation at break (per cent) of the fibre blended yarn used in the blended socks, shall not be less than those of the fibre component in the blend whose yarn has a lower rating in accordance with Table 1 i.e. in a nylon/wool or polyester/wool blend, the minimum tenacity and elongation at break of the yarn shall not be less than that of the woolen yarn as shown in Table 1.

Table 2 — Yarn unevenness

S/N	Yarn type	Linear density, in tex	CV%, max.	U%, max.
i)	Nylon [6;6,6]	10 – 70	3.5 – 0	2.8 – 0
ii)	Polyester	10 – 70	3 – 0	2.4 – 0
iii)	Acrylic	10 – 70	18 – 8	14.4 – 6.4
	a) Wool	10 – 70	23.5	18.8
	b) Cotton	15 – 70	19 – 9	15.2 – 7.2
iv)	Polyester/wool	10 – 70	23.5 – 14	18.8 – 11.2
v)	Polyester/cotton	10 – 70	15 – 12	12 – 9.6
vi)	Other blends	10 – 70	23.5 – 12	18.8 – 9.6
vii)	Elastic yarns	10 – 70	15 – 16	12 – 12.8

### 6.3 Fabric structure

The sock shall be of knitted structure in accordance with KS ISO 8388.

### 6.4 Manufacture of socks

**6.4.1** The socks shall be knitted on circular machines. The top of the socks shall be knitted in rib or plain stitches with covered rubber thread or any other suitable elastic yarn laid in; and the leg and instep shall be knitted in plain, rib or fancy stitches depending on the type of socks.

**6.4.2** The top portion of socks with covered rubber thread or any other suitable elastic yarn shall be not less than 25 mm.

**6.4.3** In case the covered rubber thread or any other suitable elastic yarn is not used at the top of the socks, the top portion shall be knitted in a rib of not less than 80 mm and it shall be extended proportionally according to socks sizes.

**6.4.4** The heel and toe portions of the socks shall be knitted in plain stitches with splicing. The splicing shall be uniform throughout and spliced portions free from creases and/or folds.

**6.4.5** The socks shall be securely joined at the toe. The joining shall be elastic, smooth and free from knots. It shall not give way when the socks are stretched to the full extent of the stretchability of the socks.

**6.4.6** The socks shall be free from manufacturing defects, such as mends, ladders, improper splicing and both dyeing and finishing defects as specified in KS 207-2.

6.4.7 The dyed socks shall comply with colour fastness requirements as given in Table 3.

6.4.8 The top of the ankle socks shall have elastic with or without blister tab

**Table 3 — Colour fastness requirements**

S/N	Colour fastness to		Numerical rating (min.)	Test method
i)	Washing	Colour Change	4	KS ISO 105 C10
		Staining	4	
ii)	Perspiration	Acid	3	KS ISO 105 E04
		Alkali	3	
iii)	Light		5	KS ISO 105 B02
iv)	Rubbing	Dry	4	KS ISO 105 X12
		Wet	4	
v)	Peroxide washing		4	KS ISO 105 N02

## 6.5 Size

6.5.1 The socks shall be grouped into five different sizes namely:

- a) Small
- b) Medium
- c) Large
- d) Extra large
- e) Free

6.5.2 The size of socks shall be determined by both foot length and leg length dimensions given in Table 3.

6.5.3 The dimensions of both foot length and leg length shall be taken in accordance with Annex A.

6.5.4 The free size shall be grouped further and designated numerical sizes whose size dimensions shall not be less than those specified in Table 4, Row ( v). The dimensions of subsequent sizes shall be at intervals of at least 30 mm.

6.5.5. The size of the ankle socks shall be determined by the foot length.

**Table 4 — Size dimensions**

S/N	Socks size	Foot length (mm)	Leg length (mm)	Method of measurement
i)	Small	100 – 125	120 – 145	Annex A
ii)	Medium	130 – 155	150 – 175	“
iii)	Large	160 – 185	180 – 205	“
iv)	Extra large	190 – 215	210 – 225	“
v)	Free	Above 220	Above 230	“

NOTE 1 In every size as given in Table 4, there shall be an increase of not less than 20 % in the foot length and leg length dimensions of 100 % cotton socks and blended socks in which cotton is a higher proportion.

NOTE 2 In every size as given in Table 4 and where elastomeric yarns e.g. spandex or lycra have been used in not less than 5% fibre content in the knitting of blended socks, there shall be an allowance of  $\pm 10$  % on foot length dimensions and leg length dimensions accordingly.

## 7 Restricted colourants

Dyed socks shall be free from colorants listed in KS ISO 14632 parts 1 & 3 and KS ISO 16373-2 & 3. Dyestuffs shall be identified in accordance with KS ISO 16373-1.

## 8 Marking

Each pair of socks shall be marked with the following information:

- Name/trade mark of the manufacturer;
- Fibre composition and proportion;
- Size designation in accordance with KS ISO 8559-2
- Care instructions in accordance with KS ISO 3758;
- Country of manufacture.

## 9 Packaging

Socks shall be packaged in accordance with KS 2659 as follows:

- Each pair of socks shall be folded properly at the heel gore line so as to form two layers.
- Each folded pair shall be wrapped or placed in a suitable material
- A batch of pairs of socks or several batches shall be placed in a packing material of suitable size which shall be secured properly.
- Each package containing a batch of socks or several batches shall have the following information which shall be indicated on the package, the swing ticket and/or accompanying documents:
  - Name/trade mark of manufacture;
  - Number of pairs in each batch;
  - Total number of batches in the package; and
  - Fibre composition and proportion.

**10 Criteria for conformity**

Each pair of socks shall comply with any of the requirements of this Kenya Standard.

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## **Annex A** (normative)

### **Measurement of socks for size determination**

#### **A.1 Conditioning of socks**

Before foot length and/or leg length dimensions are taken, the socks shall be conditioned in accordance with KS ISO 139. Take the measurements in an atmosphere similar to that used for conditioning.

#### **A.2 Sample sock preparation**

Take the conditioned sample sock to be measured. Lay it flat on a smooth table. Remove by hand all creases and wrinkles without stretching the sock.

#### **A.3 Measurements**

**A.3.1** Take the dimensions of both the foot length and leg length as defined in 4.1, 4.2 and Figure 1, both measurements to be taken correct to the nearest 5 mm.

**A.3.2** The pair shall be in compliance with the requirements of Table 3 if none of the values as determined in 4.1 varies from the specified value by more than the specified tolerance.

### **Bibliography**

- [1] Uster Statistics
- [2] Investigation of the physical and mechanical properties of fine polyester/Viscose-Elastic composite Rotor-spun yarn-Rastan Namiranian, S.Mohammed Etrait, Saeed Shalkahradeh Nafar