



DRAFT TANZANIA STANDARD

Textiles – Nylon stretch socks – Specification

DRAFT FOR STAKEHOLDERS' COMMENTS ONLY

TANZANIA BUREAU OF STANDARDS

0 Foreword

This Tanzania Standard is issued to help manufacturers of knitted nylon socks to come up with products of defined quality. Nylon socks are generally made on circular knitting machines, and this Tanzania Standard covers the requirements of these types of socks only.

In the preparation of this Tanzania Standard, assistance was derived from:

IS 5084: 1990, Socks, *Nylon – Specification*, published by the Bureau of Indian Standards.

SLS 400: 1976, *Specification for nylon stretch socks*, published by the Sri Lanka Standard Institute.

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1. SCOPE

This Draft Tanzania Standard specifies performance requirements, sampling, and test methods of seamless socks, knitted in plain, rib or fancy stitches from multifilament stretched nylon yarns.

2. NORMATIVE REFERENCES

The following referenced documents are indispensable for the application 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:

TZS 23: *Textiles – Test for colour fastness to light: Xenon arc*

TZS 26: *Textiles – Determination of conductivity, pH, water-soluble matter, chloride, and sulphate in aqueous extracts*

TZS 40: *Textiles – Tests for colour fastness to light: Daylight*

TZS 44: *Textiles – Woven or knitted fabrics – Determination of length and width*

TZS 27: *Determination of dimensional change of woven fabrics-Cold water immersion*

TZS 138: *Textiles – Test for colour fastness to rubbing*

TZS 24: *Method for determination of colour fastness of textile materials to washing.*

Test 4: severe washing TZS 280: *Textiles – Tests for colour fastness – colour fastness to perspiration*

TZS 326: *Textiles – Ternary fibre mixtures – Quantitative analysis*

TZS 327: *Textiles – Binary fibre mixtures – Quantitative chemical analysis*

3. TERMS AND DEFINITIONS

For the purpose of this Draft Tanzania Standard the following terms and definitions shall apply:

3.1 socks

knitted covering for the foot usually worn under shoes and extending above the ankle and sometimes to the knee

3.2 multifilament yarn

string, thread, etc. composed of multiple filaments that are usually bonded or twisted together.

4. TYPES OF SOCKS

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

- a) Plain knitted socks
- b) Rib knitted socks
- c) Fancy knitted socks

In the case of rib and fancy knitted socks, the particular pattern of stitches shall be as agreed to between the seller and buyer.

5. REQUIREMENTS

5.1 YARN

5.1.1 Nylon stretch yarn

Multifilament stretch nylon yarn used in knitting, linking, and splicing the socks shall conform to the requirements given in Table 1.

5.1.2 Elastic yarn

Elastic yarn or covered rubber thread having an elongation of not less than 450 percent shall be used for laying in the top portion of the socks.

5.2 The socks (Figure 1)

The socks shall be knitted on circular knitting machines. The top of the socks shall be knitted in rib or plain stitches with covered rubber threads or any other suitable elastic thread laid in, and the leg and instep in plain, rib, or fancy stitches depending upon the top of the socks. The socks shall also be free from noticeable manufacturing defects such as large mends, ladders (dropped stitch), improper splicing, and mechanical damages. Dyed socks shall be free from dyeing defects such as streakiness and uneven dyeing.

5.2.1 The heel, sole, and toe portions of the socks should be knitted in plain stitches with splicing. The splicing should be uniform throughout and the spliced portion should be free from creases or folds.

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

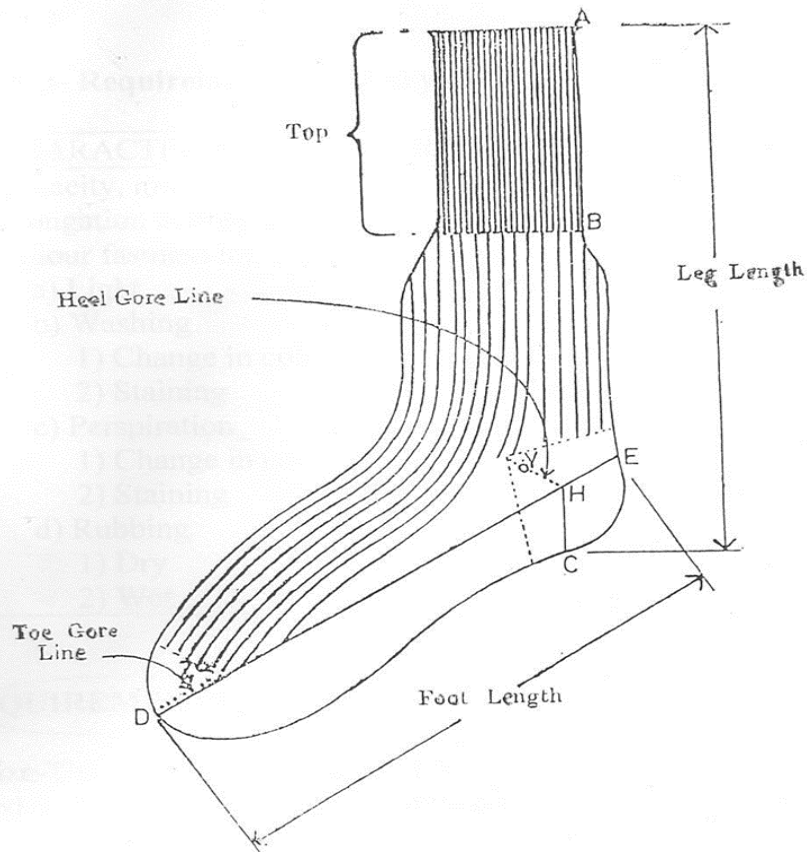


Figure 1 – Nylon sock

5.3 Size – The nylon socks shall be of four sizes, namely large, medium, small and extra small. This shall be determined by the particulars as given in Table 2.

Table 1 – Requirements for Nylon socks

Parameter			Requirement	Test method
Material composition, %, Nylon			100	TZS 326 TZS 327
Dimensional changes, Shrinkage or elongation, %, <i>max.</i>			±2	Annex B1
pH value			6.0 to 8.5	TZS 26
Colour fastness to	Light		4 or better	TZS 23
	Washing		4 or better	TZS 24
	Rubbing	Dry	4 or better	TZS 138
		Wet	3 or better	TZS 138
	Perspiration		4 or better	TZS 280
Dye properties			Non-carcinogenic Non-allergic	TZS 2007-2

Table 2 – Size particulars of nylon socks

Size of socks	Diameter of machine	Foot length (distance from D to E through H)	Leg length (distance from A to C through H)
Extra small, mm	Less than 63.5	115	125
Small, mm	Equal to or more than 63.5 and less than 76.2	145	165
Medium, mm	Equal to or more than 76.2 and less than 95.3	180	205
Large, mm	Equal to or more than 95.3	235	255
Tolerance		± 6	±12
Test method	TZS 44	Annex B	Annex B

6. PAIRING

Socks shall be matched and paired according to type, size, shade, and colour combination. A tolerance of 5 mm in the leg length and foot length of socks shall however be permissible while pairing.

7. MARKING

A label or any other suitable method of labeling bearing the following information shall be attached to each pair of socks:

- a) description of the material, 100% nylon.
- b) manufacturer's name, or reference (initials or trademark) and if required supplier's name or reference
- c) size – indicating whether large, medium, small or extra small

8. PACKING

8.1 Each pair of socks shall be suitably clipped at the heel, toe, and top portion. The clipped pair shall be folded properly at the heel gore line to form two layers. Each folded pair shall be placed in a polyethylene or cellophane bag of suitable size.

8.2 The socks in bags shall be packed in cardboard boxes of suitable size. The number of socks in a box shall be as agreed to between the buyer and the seller.

8.3 Each unit cardboard box shall be marked with the following:

- a) Name of the product, i.e. Nylon stretch socks
- b) Size - Large, medium, small or extra small
- c) Manufacturer's name, address, and/or trademark
- d) Number of pairs in a package
- e) Batch number

9. SAMPLING

9.1 Lot

In any consignment, all pairs of socks of the same type, colour, and size shall be grouped to constitute a lot.

9.1.1 The conformity of the lot to the requirements of this Draft Tanzania Standard shall be determined based on tests carried out on the samples selected from the lot.

9.1.2 Unless otherwise agreed upon between the buyer and seller, the number of pieces to be selected at random from a lot shall be in accordance with Table 3.

Table 3 – Sampling size and permissible number of non-conforming pieces

Number of pairs in the lot	Non-destructive testing		Destructive testing	
	Number of pairs to be selected	The permissible number of non-conforming pairs	Number of pairs to be selected	The permissible number of non-conforming pairs
Up to 50	10	1	2	0
51 to 100	20	2	2	0
101 to 200	30	3	2	0
201 to 300	40	3	3	0
301 to 500	50	4	5	0
501 to 800	70	6	7	1
801 to 1300	110	8	10	1
1301 to 3200	150	10	15	2
3201 and above	220	14	30	3

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Annex A
(informative)

Size socks of	Diameter of machine (mm)	if needles for ap			
		12 to 14	15	16	18
Small	70	120	132	140	150
Medium	83	144	156	164	186
Large	89	156	168	176	200
	95	168	180	188	216
	102	176	192	200	228
Recommended yarn count, tex (denier)		11x2 (2/100) or 10x2 (2/90)	10x2 (2/90) or 8x2 (2/70)	8x2 (2/70)	7x2 (2x60)

NOTE – Gauge of machine = number of needles on 25.4 mm circumference.

B.1 Dimensional change (due to relaxation)

(Informative)

B.1.1 Apparatus

Watertight tray of suitable size and at least 100 mm deep and graduated steel rule.

B.1.2 Marking of test specimens

As illustrated in figure 1, mark on each test specimen using indelible ink or fast dyed cotton sewing thread, a set of three points X, Y, and Z such that:

- a) all the three points are on the same wale,
- b) point X is on the top portion,
- c) point Y is on the heel gore line, and
- d) point Z is on the toe portion of the sock.

B.1.3 Procedure

B.1.3.1 Take one of the socks constituting the test sample. Place the specimen on the glass plate, carefully remove all wrinkles and creases without distorting the specimen and place the other glass plate on the test specimen. Measure separately correct to the nearest millimeters the distance between X and Y and between Y and Z.

B.1.3.2 Take the test specimen, laying it flat under ahead of 25 mm of water containing 0.5% suitable wetting agent at 30°C to 35°C for two hours in the watertight tray. At the end of this period without removing the test specimen, drain the water out of the tray and dry the specimen on the flat surface at room temperature. Condition it again in the standard atmosphere for 24 h. Measure separately, correct to the nearest millimeter, the distance between X and Y and that between Y and Z.

B.1.4 Calculate separately, correct to one place decimal point, the percentage dimensional changes between the points X and Y and that between Y and Z by the formula given below:

$$S = \frac{100 \times (a - b)}{a}$$

where

s = dimensional change, % a = distance between two points X and Y or Y and Z b = distance between the same points after soaking.

B.1.5 Calculate the average dimensional change between the two sets of points, namely, X, Y, and Z.

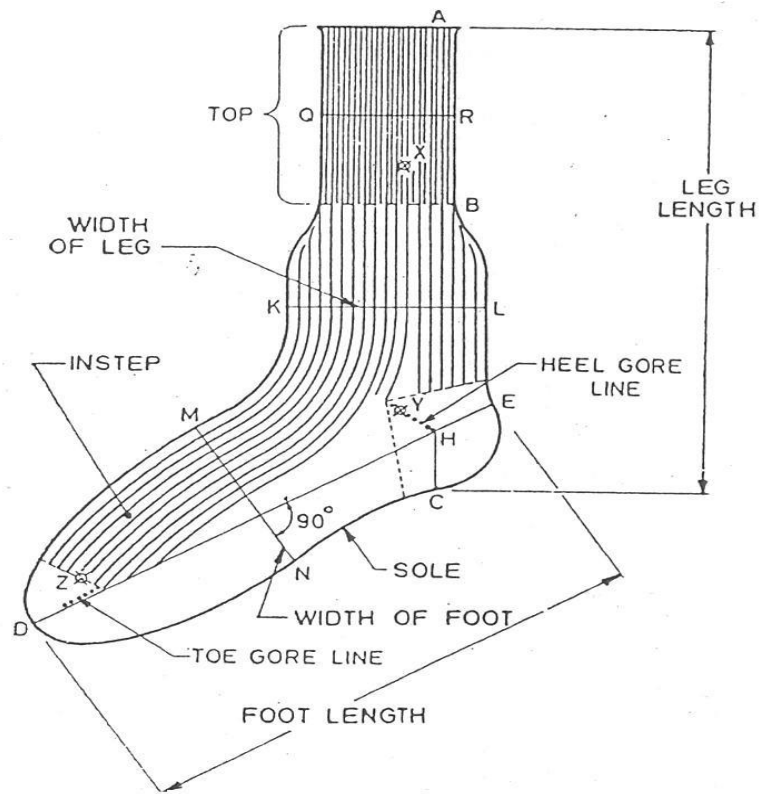


Figure 1 – 'Rib top' cotton sock

Annex B

B.1 conditioning of tests specimens and atmospheric conditions for testing

Conditioning and testing

Prior to test, the test specimens shall preferably be conditioned to moisture equilibrium in a standard atmosphere for conditioning and testing as prescribed in TZS 534 (see clause 2).

B.2 Dimensions

B.2.1 Procedure

Take a sock from one of the pairs of socks constituting of test specimens. Lay it flat on the table. Remove by hand all creases and wrinkles, taking care not to stretch it. Measure the following to the nearest 5 mm (see also figure 1):

- a) foot length – the distance from the tip of the toe to the back of the heel along the line passing through H, that is the distance between D and E through H.

- b) leg length – the distance from the top of the sock to the bottom of the heel along the line passing through the point H, that is the distance between A and C through H.

Determine similarly (a) foot length and (b) leg length of the remaining sock in the pair.

B.2.2 Repeat the procedure with the remaining pairs of socks constituting the test specimens

B.2.3 Take the pair to be in conformity with the requirements of table 2 if none of the values as determined in B.2.1 varies from the specified values by more than the specified tolerances.

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