भारतीय मानक

Indian Standard

IS 14358 : 2024

वस्त्रादि — जूतों और बूटों के लिए नायलॉन लेस — विशिष्टि

(पहला पुनरीक्षण)

Textiles — Nylon Laces for Shoes and Boots — Specification

(First Revision)

ICS 61.060

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
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Technical Textiles for Clothtech Applications Including Narrow Fabrics and Braids Sectional Committee, TXD 39

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards after the draft finalized by the Technical Textiles for Clothtech Applications including Narrow Fabrics and Braids Sectional Committee had been approved by the Textile Division Council.

Laces are strings or cords used to secure footwear, such as shoes and boots, by threading through eyelets or hooks. Nylon laces are durable and flexible known for their strength and resistance to wear and tear, nylon laces are ideal for outdoor and work footwear, providing reliable support and longevity. Beyond functionality, laces also serve as a fashion element, available in numerous colors and designs to complement or enhance the look of the footwear.

This standard was first published in 1996. This revision has been brought out in the light of experience gained since its publication and to incorporate the following major changes:

a) Title of the standard has been modified;

b) BIS certification marking clause has been modified; and

c) References to standard given in Annex A has been updated.

The composition of the Committee responsible for the formulation of this standard is given in Annex D.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

TEXTILES — NYLON LACES FOR SHOES AND BOOTS — SPECIFICATION

(First Revision)

1 SCOPE

This specification covers the requirement of nylon laces to be used in shoes and boots.

2 REFERENCES

The standards listed in Annex A contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of these standards.

3 MATERIALS

3.1 Laces shall be manufactured from bulked nylon 6 or nylon 6,6 multifilament yarn.

3.2 The tips shall be made from transparent cellulose acetate film.

4 MANUFACTURE

4.1 The laces shall be firmly and uniformly braided throughout with equal tension on each end/yarn.

4.2 The laces shall be cut to the required length for shoes and boots as the case may be.

4.3 The tips of the laces shall be 15 mm in length and shall be securely fixed at both the ends so that these do not come off. The tips shall not slip easily even on wetting. Alternatively heat or chemical fusing may be adopted for formation of tips. The nylon laces shall not protrude out of tips at the end.

5 WORKMANSHIP AND FINISH

The laces shall be free from broken filaments. Knots, if any, shall be as small as possible and firm, with the ends neatly trimmed off. The laces shall be evenly dyed, free from stains and streaks when judged by visual inspection.

6 REQUIREMENTS

The laces shall conform to the requirements given in Table 1.

7 PACKING

The laces shall be packed in pairs. The laces shall then be bundled or packed as agreed to between the buyer and the seller. Only laces of same type, length and colour shall be packed together in the same bundle of package.

8 MARKING

8.1 Each pair of laces shall be bound by paper band bearing the following information:

a) Manufacturer’s name initials or trademark;

b) Material (for example, nylon lace); and

c) Length in cm.

8.2 Bach bundle or package shall have a label securely attached and bearing the following information:

a) Manufacturer’s name, initials or trademark;

b) Material (for example, nylon lace);

c) Length, in cm;

d) Colour;

e) Number of pairs; and

f) Any other information as required by the law in force.

8.3 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the product(s) may be marked with the Standard Mark.

9 SAMPLING AND CRITERIA FOR CONFORMITY

9.1 Sampling

9.1.1 *Lot*

The quantity of laces of the same size and shade delivered to a buyer against one dispatch note shall constitute a lot.

9.1.2 The conformity of a lot to the requirements of the standard shall be determined on the basis of the tests carried out on the laces selected from the lot.

9.1.3 Unless otherwise agreed to between the buyer and the seller, the number of pairs of laces to be selected at random for inspection shall be in accordance with Table 2.

Table 1 Requirements of Laces

(*Clause* 6)

Sl No.	Characteristic(s)	Requirement(s)		Tolerance(s)	Method of Test, Ref to
		Laces for Boot	Laces for Shoes		
(1)	(2)	(3)	(4)	(5)	(6)
i)	Length, cm	90.0 ± 2	60.0	± 2	IS 1954
ii)	Flat width, mm	6.0 + 0.5 - 0.0	5.0	+ 0.5 - 0.0	
iii)	Mass per 10 pairs, g, *Min*	70.0	45.0	-	Annex B
iv)	Number of plaits per 2.5 cm	30.0 ± 2	30.0	± 2	Annex C
v)	Number of spindles	32.0	32.0	-	Visual
vi)	Breaking load, N, *Min*	750.0	550.0	-	IS 1969
vii)	*p*H of aqueous extract	6.5 to 8.5	6.5 to 8.5	-	IS 1390
viii)	Colour fastness to: a) Light b) Washing (Test 3)	4 or better	4 or better	—	IS/ISO 105-B01 or IS/ISO 105-B02 IS/ISO 105-C10
ix)	Elongation under 5.0 kg load, percent, *Max*	25.0	25.0	-	IS 1969

9.2 Criteria for Conformity

It shall be as follows:

Sl No.	*Characteristics*	*No. of Samples*	*Criteria for Conformity*
(1)	(2)	(3)	(4)
i)	Visual inspection	According to col (3) of Table 2	All sample shall pass.
ii)	Length, width, mass of 10 pairs and number of plaits	According to col (4) of Table 2	The number of non-conforming pair shall not exceed the corresponding number given in col (5) of Table 2
iii)	Breaking load, *p*H of aqueous extract colour fastness and elongation under 5 kg load.	According to col (6) if Table 2	All test pieces shall meet the requirements specified.

Table 2 Sampling Plan

(*Clause* 9.1.3)

Sl No.	Lot Size, No. of Pairs	Sample Size for Visual Inspection	Sub-sample for Non-destructive Tests	Permissible No of Non-conforming Units	Sub Sample Size for Destructive Tests
(1)	(2)	(3)	(4)	(5)	(6)
i)	Up to 50	8	3	0	3
ii)	51 to 100	13	4	1	3
iii)	101 to 150	20	5	2	4
iv)	105 to 300	32	8	3	5
v)	301 to 500	50	12	5	6
vi)	500 and above	80	20	7	8

ANNEX A

(*Foreword and Clause 2*)

LIST OF REFERRED STANDARDS

IS No.	*Title*
IS/ISO 105-B02 : 2014	Textiles — Tests for colour fastness: Part B02 Colour fastness to artificial light: Xenon arc fading lamp test
IS/ISO 105-C10 : 2006	Textiles – Tests for colour fastness: Part C10 Colour fastness to washing with soap or soap and soda (*second revision*)
IS 1390 : 2022	Textiles Determination of *p*H of aqueous extract (*third revision*)
IS 1954 : 2024 :	Textiles — Fabrics — Determination of width and length (*third revision*)
IS 1969 (Part 2) : 2018	Textiles — Tensile properties of fabrics: Part 2 Determination of maximum force using the grab method (*fourth revision*)

ANNEX B

(*Clause 6 and Table 1*)

DETERMINATION OF MASS

B-1 Take a set of 10 pairs of laces from the test sample. Condition of the test sample at (65 ± 2) percent relative humidity and (27 ± 2) °C temperature for 24 h and weigh them to an accuracy of 0.5 g.

ANNEX C

(*Clause 6 and Table 1*)

METHOD FOR DETERMINATION OF PLAITS/2.5 cm

C-l The test specimen shall be conditioned at (65 ± 2) percent relative humidity and (27 ± 2) °C temperature for 48 h. The laces shall be laid down on a smooth flat measuring surface and the counting shall be carried out in a relaxed condition.

C-2 The plaits shall be counted to the nearest l/2 plait over a distance of 25 mm. Five such determinations shall be made at random on the sample under test and then average taken.

ANNEX D

(*Foreword*)

COMMITTEE COMPOSITION

Technical Textiles for Clothtech Applications including Narrow Fabrics and Braids Sectional Committee, TXD 39

Organization	*Representative*(*s*)
Additional Controller CQA (General Stores), DGQA, Ministry of Defence, Kanpur	SHRI A. CHOWDHURY **(*Chairperson*)**
ICAR - Central Institute for Research on Cotton Technology, Mumbai	DR P. JAGAJANANTHA
Federation of Indian Chambers of Commerce and Industry, New Delhi	SHRI ANU HANDA DR T. SENTHILKUMAR (*Alternate*)
Indian Technical Textile Association, Mumbai	DR ANUP RAKSHIT SHRI VIKRAM JAIN (*Alternate*)
M K U Limited, Kanpur	SHRI SUMIT KHANDELWAL SHRI RAJIB PAL (*Alternate*)
Motilal Dulichand Pvt Ltd, Kanpur	SHRI SHAILENDRA NATH MISRA SHRI SUDHIR SHIVHARE (*Alternate*)
National Textile Corporation, New Delhi	SHRI R. K. YADAV
Ordnance Parachute Factory, Kanpur	SHRI V. M. BAGADE SHRI S. KONDAIAH (*Alternate*)
Office of Textiles Commissioner, Mumbai	SHRI V. K. KOHLI SHRI HUMAYUN K. (*Alternate*)
SGS Limited, Gurugram	MS ANITHA JEYARAJ SHRI GAURAV SARASWAT (*Alternate*)
S L Banthia Textiles Industries Pvt Ltd, Surat	SHRI SANTOSH KUMAR BANTHIA
Shipra International, Kanpur	SHRI ABHISHEK KUMAR AGRAWAL
Sky Industries Ltd, Navi Mumbai	SHRI KAPIL MEHROTRA SHRI MICHAEL (*Alternate*)
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The Bombay Textile Research, Association,Mumbai	SHRI SHAIKH RIYAZ AHMED DR PRASANTA KUMAR PANDA (*Alternate*)
U P Textile Technological Institute, Kanpur	DR PRASHANT VISHNOI

Organization	*Representative*(*s*)
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BIS Directorate General	SHRI J. K. GUPTA, SCIENTIST 'E'/DIRECTOR AND HEAD (TEXTILES) [REPRESENTING DIRECTOR GENERAL (*Ex-officio*)]

Member Secretary
SHRI TANISHQ AWASTHI
SCIENTIST 'B'/ASISTANT DIRECTOR
(TEXTILES), BIS

Bureau of Indian Standards

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