भारतीय मानक **IS 1920 : 2023**

Indian Standard

वस्त्रादि — गांजा के रेशों से बनी सुतली — विशिष्टि

(तीसरा पुनरीक्षण)

Textiles — Hemp Lines — Specification

(Third Revision)

ICS 59.080.50

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March 2023 **Price Group 5**

Cordage Sectional Committee, TXD 09

FOREWORD

This Indian Standard (Third Revision) was adopted by the Bureau of Indian Standards after the draft was finalized by the Cordage Sectional Committee and approved by the Textiles Division Council.

The hemp fibre is a natural plant fiber that contains 73 % to 77 % w/w cellulose, 7 % to 9 % w/w hemicellulose and 4 % to 6 % w/w lignin. Cellulose is a homogeneous linear polymer constructed of repeating glucose units. It is a highly crystalline polysaccharide.

This standard was first published in 1961 and subsequently revised in 1973 and 1987. This revision has been made in the light of experience gained since its publication and to incorporate the following major changes:

a) Requirement for identification of material has been incorporated;
b) Criteria of conformity have been modified;
c) Marking clause has been modified; and
d) References to Indian standards have been updated.

The composition of the committee responsible for the formulation of this standard is listed in Annex B.

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 — HEMP LINES — SPECIFICATION

(Third Revision)

1 SCOPE

1.1 This standard prescribes the requirements of six varieties of hawser-laid hemp lines.

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 editions of the standards listed in Annex A.

3 TERMINOLOGY

3.1 For the purpose of this standard, the definitions given in IS 3871 shall apply.

4 ATMOSPHERIC CONDITIONS FOR CONDITIONING AND TESTING

4.1 The tests shall normally be carried out under prevailing atmospheric conditions. In all cases of dispute, however, tests shall be carried out on samples which have been conditioned for 24 h in an atmosphere at (65 ± 2) percent relative humidity and 27 °C ± 2 °C temperature (*see* IS 6359). Where practicable, tests shall be made in the standard conditioning atmosphere; otherwise, they shall be made as quickly as possible but not exceeding 15 minutes of removal of the test pieces from the conditioning atmosphere.

5 MANUFACTURE

5.1 Fibre

The fibre used in the manufacture of hemp lines shall be hemp fibre reasonably free from root ends, dust, dirt, dry pulp or any other foreign matter.

5.2 Yarn

The variety No. 1 shall be made from yarn weighing approximately 1 200 m/kg and Variety No. 2 to 6 shall be made from yarn weighing approximately 910 m/kg. The number of yarns per strand in the line shall be as shown in Table 1 and each strand shall contain equal number of yarns.

5.3 Strands

The strands of line shall be well formed, evenly twisted and shall be free from grooves and sunken yarns.

5.4 Lines

The lines shall be well and evenly laid and shall be reasonably free from defects. The finished strand shall have Z-lay. The lines shall be firm in lay and satisfactory in handle. The lines should not be too stiff in handle or too loose (that is, lines in which the strands can be readily untwisted by hand).

5.5 Skeins — The skeins shall be continuous throughout its length and shall not contain splices or joints in the strands or in the line. The free ends of the skein shall be whipped to prevent unravelling.

6 REQUIREMENTS

6.1 Fibre Identification

The material of the line that is made of hemp fibre shall be identified by the confirmatory test as specified in IS 667.

6.2 The hawser-laid hemp lines shall comply with the requirements specified in Table 1.

Table 1 Requirements of Hawser-Laid Hemp Lines
(*Clauses* 5.2 and 6.2)

Sl No.	Variety No.	Diameter	Pitch or Maximum Length of 10 Lays	No. of Yarns Per Strands	Linear Density	Breaking Load on 60 cm Test Length, *Min*
		mm	cm		ktex	N
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	1	2	6.6	2	5.7	345
ii)	2	3	9.9	2	6.8	440
iii)	3	4	13.2	3	12	685
iv)	4	5	16.5	5	18	1 275
v)	5	6	19.8	7	27	1 570
vi)	6	7	23.1	9	39	2 255
	Tolerance	$^{+0.5}_{-0.0}$ mm	—	—	± 5 percent	—
	Method of test	IS 7071	IS 7071	—	IS 7071	IS 1670

NOTE — 1 N = 0.102 kgf approximately.

6.2 Rot Proofing Treatment

If so ordered, ropes shall be rot proofed by the application of rot-proofing agent in appropriate quantity as agreed to between the buyer and the seller. In case zinc or copper naphthenate is used the zinc content shall be within 0.8 percent to 1.2 percent and copper content shall be within 0.4 percent to 0.8 percent respectively and the estimation of Zn and Cu shall be done in accordance with IS 3522.

6.3 Length of Skein

Unless otherwise stated, the lines shall be supplied in skeins of 37 m. The length of line in a skein shall be measured by the method prescribed in IS 7071.

7 SAMPLING AND CRITERIA FOR CONFORMITY

7.1 The number of skeins of the same nominal diameter manufactured under similar conditions and delivered to a buyer against a dispatch note shall constitute a lot.

7.2 The conformity of the lot shall be determined on the basis of the tests carried out on the samples selected from it.

7.3 Sample Size

Sampling shall be as representative as possible of the lot subjected to the measurement and tests. Draw the samples at random at the rate shown by the following formula:

$$S = 0.4\sqrt{N}$$

where S is the number of sample skeins and N is the size of the lot expressed as a number of 37 m skeins. When S as calculated is not a whole number, round off the value obtained to give a whole number in accordance with the requirements of IS 2. In case where S is less than one, draw one sample coil.

7.4 Criteria for Conformity

The lot shall be declared as conforming to this standard if the conditions given below are satisfied:

a) The length of each skein is not less than the specified length;

b) All the individual test samples tested for breaking strength satisfy the specified breaking strength. However, in case of failure of a test specimen drawn from a coil another specimen shall be retested from the same coil and the same shall satisfy the specified requirement; and

c) The average value of the test results in respect of other requirements conform to the requirements specified in the standard.

8 PACKING

8.1 Unless otherwise agreed to between the buyer and the seller the lines shall be packed conforming to the requirements laid down in IS 3256.

9 MARKING

9.1 Each skein shall have a label securely attached to it on which the following information shall be legibly and indelibly marked:

a) Name of the material;
b) Diameter/variety of hemp line, mm;
c) Length of the line in the skein in metres;
d) Gross and net weight;
e) Manufacturer's name or trade-mark;
f) Month and year of manufacture; and
g) Any other information required by the law in force and/or by the buyers.

9.2 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 products may be marked with the Standard Mark.

ANNEX A
(*Clause* 2)

LIST OF REFERRED INDIAN STANDARDS

IS No.	*Title*
IS 667 : 1981	Methods for identification of textile fibres (*first revision*)
IS 1670 : 1991	Textiles — Yarn — Determination of breaking load and elongation at break of single strand (*second revision*)
IS 3256 : 1980	Code for inland packaging of ropes and cordages (*first revision*)
IS 3522 (Part 1) : 1989	Methods for estimation of common preservatives on textiles: Part 1 (*first revision*)
IS 3871 : 2013	Fibre ropes and cordage — Vocabulary (*third revision*)
IS 6359 : 2023	Method for conditioning of textiles (*first revision*)
IS 7071 : 2021	Fibre ropes — Determination of certain physical and mechanical properties (*second revision*)

ANNEX B

(*Foreword*)

COMMITTEE COMPOSITION

Cordage Sectional Committee, TXD 09

Organization	*Representative(s)*
Indian Institute of Technology Delhi, New Delhi	DR (PROF) R. CHATTOPADHYAY **(*Chairperson*)**
Association of Synthetic Fibre Industries, New Delhi	DR M. S. VERMA
Azuka Synthetics LLP, Panchkula	SHRI SUSHANT GUPTA SHRI DEVRAJ THAKUR (*Alternate*)
Central Coir Research Institute, Kochi	SHRIMATI SUMI SEBASTIAN DR ANITA JACOB (*Alternate*)
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Coast Guard Headquarters, New Delhi	CMDT NUPUR KULSHRESTHA SHRI D. D. SHARMA (*Alternate*)
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Indian Jute Industries Research Association, Kolkata	MS SOUMIATA CHOWDHURY SHRI PARTH SANYAL (*Alternate*)
Indian Jute Mills Association, Kolkata	SHRI SAMIR KUMAR CHANDRA SHRI BHUDIPTA SAHA (*Alternate*)
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Kohinoor Ropes Private Limited, Aurangabad	SHRI VINAY CHANDAK SHRI SUNIL BIHANI (*Alternate*)
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Office of the Textile Commissioner, Mumbai	SHRI N. K. SINGH SHRI HUMAYUN K. (*Alternate*)

Organization	*Representative(s)*
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Oil India Limited (OIL), Assam	REPRESENTATIVE
Protherm Engineering Private Limited, Faridabad	SHRI RATNESH DEWAN SHRI SANJEEV KUMAR SHARMA (*Alternate*)
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Shipping Corporation of India Limited, Mumbai	CAPT YOGESH PURI
Thanawala and Company, Mumbai	SHRI HEMAL M. THANAWALA SHRI VIVAAN THANAWALA (*Alternate*)
Tufropes Private Limited, Silvassa	SHRI ANURAG SARIN SHRI SHASHI BHUSHAN NEGI (*Alternate*)
BIS Directorate General	SHRI J. K. GUPTA, SCIENTIST 'E'/DIRECTOR AND HEAD (TEXTILES) [REPRESENTING DIRECTOR GENERAL (*Ex-officio*)]

Member Secretary
SHRI ASHWANI KUMAR
SCIENTIST 'B'/ASSISTANT DIRECTOR
(TEXTILES), BIS

Bureau of Indian Standards

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Review of Indian Standards

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This Indian Standard has been developed from Doc No.: TXD 09 (20265).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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Published by BIS, New Delhi