भारतीय मानक

Indian Standard

IS 11199 : 2023

वस्त्रादि — दरवाजे के लिए उच्च घनत्व पोलीइथाइलीन (एच डी पी ई) मोनोफिलामेंट सुतली से बुने हुए जाल — विशिष्टि

(पहला पुनरीक्षण)

Textiles — High Density Polyethylene (HDPE) Monofilament Twine Door Nets — Specification

(First Revision)

ICS 59.080.50

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December 2023 **Price Group 5**

Cordage Sectional Committee, TXD 09

FOREWORD

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

These nets are mostly used in the door of the foodgrain storages of Food Corporation of India for preventing birds from entering the godowns. This standard has been prepared in collaboration with Food Corporation of India, New Delhi.

This standard was first published in 1985. 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) Amendment has been incorporated;

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 given 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 — HIGH DENSITY POLYETHYLENE (HDPE) MONOFILAMENT TWINE DOOR NETS — SPECIFICATION

(First Revision)

1 SCOPE

This standard prescribes the requirements of HDPE monofilament twine door nets used for preventing birds from entering the grain storage.

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 these standards.

3 MANUFACTURE

3.1 Twines

3.1.1 The continuous monofilament yarn used in the manufacture of twine shall be made out of HDPE of designation HDPE 43 LB or HDPE 53 LB according to IS 7328. However, the density of the material used shall not be more than 0.955 g/m1 at 27 °C and the melt flow index (MFI 190/5) of the material shall be between 1.3 g/10 min to 2.4 g/10 min.

3.1.2 The twine shall be of black colour (achieved by adding 0.1 percent carbon black). These shall be flexible and consist of 3 plies, each uniform and well laid.

3.1.3 The twines shall also meet the requirements as given in Table 1.

3.2 Border Rope

The rope used in the border of the net shall be made of high density continuous monofilament polyethylene having a relative density of 0.95 to 0.96 and of nominal diameter of 3 mm. The net shall be fixed with border rope on each side.

3.2.1 The minimum breaking load of the rope shall be 400 N, when tested as per IS 1670.

3.2.2 The rope shall be of black colour (achieved by adding 0.1 percent carbon black).

3.3 Iron Rings

Iron rings shall be of 2.20 cm inner diameter and chromium plated. Twenty-one such iron rings shall be attached at the top of the net at an interval of l5 cm and 10 rings on each side of net and spaced at equal internal.

3.4 Iron Beads

Forty-one galvanized iron beads of 50 g ± 5 g each shall be attached to the bottom border of net by HDPE twine, 5 × 3 ply and 1 mm diameter at an interval of about 7.5 cm.

4 ATMOSPHERIC CONDITIONS FOR CONDITIONING AND TESTS

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

5 REQUIREMENTS

5.1 Filament Identification

The material of twine that is HDPE shall be identified by the confirmatory test as specified in IS 667.

5.2 The nets shall be manufactured out of raw materials indicated in **3.1** to **3.4**.

5.3 The nets shall have either weavers knot (or trawl knot) or cross knot (or flat knot) (*see* IS 4641).

5.4 The nets shall also meet the requirements as given in Table 2.

6 SAMPLING AND CRITERIA FOR CONFORMITY

6.1 Lot

The number of pieces of nets delivered to a buyer against a despatch note shall constitute a lot.

6.2 For ascertaining the conformity of the lot, samples shall be drawn at random from the lot for inspection as given in Table 3. To ensure the randomness of selection, methods given in IS 4905 may be followed.

Table 1 Requirements of HDPE Monofilament Twines

(*Clause* 3.1.3)

Sl No.	Characteristics	Requirement	Method of Test
(1)	(2)	(3)	(4)
i)	Nominal diameter	1 mm	IS 7071
ii)	Construction	5 × 3 ply	—
iii)	Turns per metre, *Min*		IS 7071
	a) Inner (single yarn)	280	
	b) Outer (twine)	170	
iv)	Breaking load, N, *Min*	152	IS 58l5 (Part 4)
v)	Elongation at break, percent, *Max*	20	IS 5815 (Part 7)

Table 2 Requirements for HDPE Monofilament Twine Nets

(*Clause* 5.4)

Sl No.	Characteristic	Requirement
(1)	(2)	(3)
i)	Length, m, *Min*	3.1
ii)	Width, m, *Min*	3.1
iii)	Type of mesh	Square
iv)	Size of mesh, cm (or length of mesh side)	2.5 ± 0.2

Table 3 Sample Size

(*Clause* 6.2)

Sl No.	No. in Lot Size	Sample Size (for Tests as Indicated in 5.3 and 5.4)	Sub-sample Size (for Tests as Indicated in 5.2)	Permissible Number of Defective Nets
(1)	(2)	(3)	(4)	(5)
i)	Up to 100	8	3	0
ii)	101 to 150	13	5	0
iii)	101 to 300	20	5	0
iv)	301 and above	32	8	1

6.3 The lot shall be considered conforming to the requirements given in **5.3** and **5.4**, if the number of failures does not exceed the acceptance number given in col (5) of Table 3.

6.4 The lot shall be considered conforming to the requirements given in **5.2**, if all the pieces tested according to **3.1** to **3.4** meet the relevant requirements.

7 PACKING

Each net shall be packed into low density polyethylene film of 60 micron thickness or in any other suitable packing material as agreed to between the buyer and the seller.

8 MARKING

8.1 Each net shall be marked with the following:

a) Name of the material;

b) Length and width of the piece;

c) Manufacturers' name, initials or trade-mark, if any;

d) Month and year of manufacture; and

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

NOTES — Each package shall be marked with a recycling logo as shown below. The logo shall be clearly visible on the package.

8.1.1 Any other marking as agreed to between the buyer and the seller may also be given.

8.2 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 each package of product(s) may be marked with the Standard Mark.

ANNEX A

(*Clause* 2)

LIST OF REFERRED STANDARDS

IS No.	*Title*
IS 667 : 1981	Methods for identification of textile fibres (*first revision*)
IS 1670 : 1991	Textiles — Yarns — Determination of breaking load elongation at break of single strand (*second revision*)
IS 4641 : 2005/ ISO 1530 : 2003	Textiles — Fishing nets — Description and designation of knotted netting (*second revision*)
IS 4905 : 2015/ ISO 24153 : 2009	Random sampling and randomization procedures (*first revision*)
IS 58l5 (Part 4) : 2018/ISO 1805 : 2006	Methods of test for fishing gear materials: Part 4 Fishing nets — Determination of breaking force and knot breaking force of netting yarns (*second revision*)
IS 5815 (Part 7) : 1993/ISO 3790 : 1976	Fishing nets — Determination of elongation of netting yarns (*first revision*)
IS 6359 : 2023	Method for conditioning of textiles (*first revision*)
IS 7071 : 2021/ ISO 2307 : 2019	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	PROF (DR) R. CHATTOPADHYAY **(*Chairperson*)**
Azuka Synthetics LLP, Panchkula	SHRI SUSHANT GUPTA SHRI DEVRAJ THAKUR (*Alternate*)
Central Coir Research Institute, Kochi	DR SHANMUGASUNDARAM O. L. SHRIMATI SUMI SEBASTIAN (*Alternate*)
Chhotanagpur Rope Works Private Limited, Ranchi	SHRI SIDDHARTH JHAWAR SHRI ANURAG JHAWAR (*Alternate*)
Central Institute of Petrochemicals Engineering and Technology (CIPET), Bhopal	REPRESENTATIVE
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Indian Jute Mills Association, Kolkata	SHRI SAMIR KUMAR CHANDRA SHRI BHUDIPTA SAHA (*Alternate*)
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Oil and Natural Gas Corporation (ONGC), Mumbai	SHRI AJAY KUMAR KAPSHE MS MANASI SAIKIA (*Alternate*)
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Protherm Engineering Pvt Ltd, Faridabad	SHRI RATNESH DEWAN SHRI SANJEEV KUMAR SHARMA (*Alternate*)

Organization	*Representative(s)*
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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

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the website-www.bis.gov.in or www.standardsbis.in.

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