भारतीय मानक
Indian Standard

IS 14929 : 2022
ISO 10572 : 2009

मिश्रित पॉलीओलीफिन रेशों से बनीं रस्सियाँ

(पहला पुनरीक्षण)

Mixed Polyolefin Fibre Ropes

(First Revision)

ICS 59.080.50

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, 9 बहादुर शाह ज़फर मार्ग, नई दिल्ली - 110002
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI - 110002
www.bis.gov.in www.standardsbis.in

December 2022 **Price Group 6**

Cordage Sectional Committee, TXD 09

NATIONAL FOREWORD

This Indian Standard (First Revision) which is identical with ISO 10572 : 2009 'Mixed polyolefin fibre ropes' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on recommendation of the Cordage Sectional Committee and approval of the Textiles Division Council.

This standard was originally published in 2001. This revision has been undertaken to harmonize it with the latest version of ISO 10572 : 2009 on the subject.

The text of ISO Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.

b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards, which are to be substituted in their respective places, are listed below along with their degree of equivalence for the editions indicated:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 1968, Fibre ropes and cordage — Vocabulary	IS 3871 : 2013 Fibre ropes and cordage — vocabulary (*third revision*)	Identical with ISO 1968 : 2004
ISO 2307 Fibre ropes — Determination of certain physical and mechanical properties	IS 7071 : 2021 Fibre ropes — Determination of certain physical and mechanical properties	Identical with ISO 2307 : 2019
ISO 9554 Fibre ropes — General specifications	IS/ISO 9554 : 2019 Fibre ropes — General specifications (*first revision*)	Identical with ISO 9554 : 2019

The standard also makes a reference to the BIS Certification Marking of the product. Details of which are given in National Annex A.

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

MIXED POLYOLEFIN FIBRE ROPES

(First Revision)

1 Scope

This International Standard specifies requirements for 3-strand hawser-laid, 4-strand shroud-laid, 8-strand braided and 12-strand braided ropes made of mixed polyolefin fibres, and gives rules for their designation.

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.

ISO 1968, *Fibre ropes and cordage — Vocabulary*

ISO 2307, *Fibre ropes — Determination of certain physical and mechanical properties*

ISO 9554:2005, *Fibre ropes — General specifications*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1968 apply.

4 Designation

Fibre ropes shall be designated by the following:

— the words “fibre rope”;

— the number of this International Standard;

— the construction or type of rope (see Clause 6);

— the reference number of the rope;

— the material from which the rope is made.

EXAMPLE Designation of a 3-strand hawser-laid rope, reference number 20 (Type A), corresponding to a linear density of 181 ktex made of mixed polyolefin fibre (PO):

Fibre rope ISO 10572 - A - 20 - PO

5 Materials

The rope shall be constructed using bi-component fibres made of a blend during extrusion of polypropylene and of polyethylene, with a minimum of 15 % and a maximum of 50 % of polyethylene.

6 General requirements

6.1 Mixed polyolefin fibre ropes shall be constructed in one of the following ways:

— type A: 3-strand hawser-laid rope (see Figure 1);

— type B: 4-strand shroud-laid rope (see Figure 2);

— type L: 8-strand braided rope (see Figure 3);

— type T: 12-strand braided rope (see Figure 4).

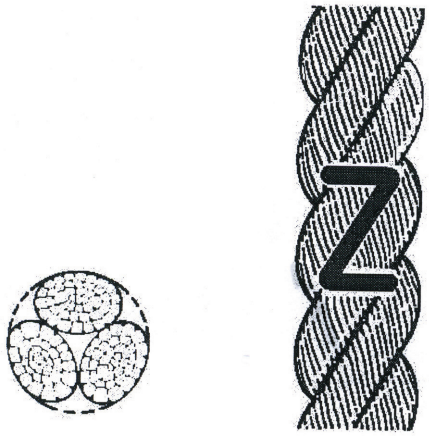

Figure 1 — Shape of a 3-strand hawser-laid rope (type A)

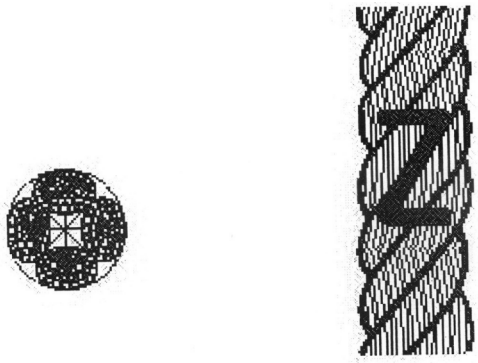

Figure 2 — Shape of an 4-strand shroud-laid rope (type B)

Figure 3 — Shape of an 8-strand braided rope (type L)

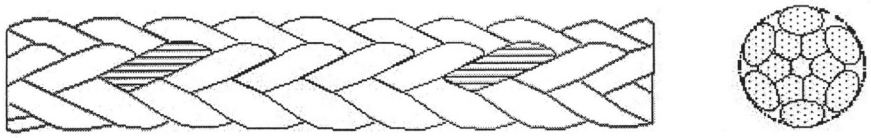

Figure 4 — Shape of a 12-strand braided rope (type T)

6.2 Construction, manufacture, lay, labelling, packaging, invoicing and delivery lengths shall conform to ISO 9554.

7 Physical properties

The linear density and minimum breaking force shall conform to Tables 1, 2 and 3.

Table 1 — Linear density and minimum breaking force of 3-strand hawser-laid mixed polyolefin fibre ropes (type A)

Reference number[a]	Linear density[bc]		Minimum breaking force[de] kN	
	Nominal ktex	Tolerance %	Unspliced ropes	Ropes with eye-spliced terminations
6	16,3	±10	6,76	6,08
8	29,0		11,7	10,5
10	45,3	±8	18,0	16,2
12	65,2		25,4	22,9
14	88,8		34,0	30,6
16	116	±5	43,5	39,2
18	147		54,5	49,0
20	181		66,2	59,6
22	219		79,1	71,2
24	261		92,8	83,5
26	306		107	96,3
28	355		123	111
30	408		140	126

Table 1 (*continued*)

Reference number[a]	Linear density[bc]		Minimum breaking force[de] kN	
	Nominal ktex	Tolerance %	Unspliced ropes	Ropes with eye-spliced terminations
32	464	±5	157	141
36	587		194	175
40	725		234	211
44	877		277	249
48	1 040		325	293
52	1 220		376	338
56	1 420		429	386
60	1 630		486	437
64	1 860		544	490
68	2 100		609	548
72	2 350		677	609
80	2 900		818	736
88	3 510		985	887
96	4 170		1 170	1 050

[a] The reference number corresponds to the approximate diameter, in millimetres.

[b] The linear density, in kilotex, corresponds to the net mass per length of the rope, expressed in grams per metre or in kilograms per kilometre.

[c] The linear density is obtained under reference tension and is measured as specified in ISO 2307.

[d] The breaking forces relate to new, dry and wet ropes.

[e] A force determined by the test methods specified in ISO 2307 is not necessarily an accurate indication of the force at which that rope might break in other circumstances and situations. The type and quality of terminations, the rate of force application, prior conditioning and previous force applications to the rope can significantly influence the breaking force. A rope bent around a post, capstan, pulley or sheave may break at a significantly lower force. A knot or other distortion in a rope may significantly reduce the breaking force.

Table 2 — Linear density and minimum breaking force of 4-strand shroud-laid mixed polyolefin ropes (type B)

Reference number[a]	Linear density[bc]		Minimum breaking force[de] kN	
	Nominal ktex	Tolerance %	Unspliced ropes	Ropes with eye-spliced terminations
6	16,3	±10	6,08	5,47
8	29,0		10,5	9,45
10	45,3	±8	16,2	14,6
12	65,2		22,9	20,6
14	88,8		30,6	27,5
16	116	±5	39,2	35,2
18	147		49,1	44,2
20	181		59,6	53,6
22	219		71,2	64,1
24	261		83,5	75,2
26	306		96,3	86,7
28	355		111	100
30	408		126	113
32	464		141	127
36	587		175	158
40	725		211	190
44	877		249	224
48	1 040		293	264
52	1 220		338	304
56	1 420		386	347
60	1 630		437	393
64	1 860		490	441
68	2 100		548	493
72	2 350		609	548
80	2 900		736	662
88	3 510		887	798
96	4 170		1 050	945

[a] The reference number corresponds to the approximate diameter, in millimetres.

[b] The linear density, in kilotex, corresponds to the net mass per length of the rope, expressed in grams per metre or in kilograms per kilometre.

[c] The linear density is obtained under reference tension and is measured as specified in ISO 2307.

[d] The breaking forces relate to new, dry and wet ropes.

[e] A force determined by the test methods specified in ISO 2307 is not necessarily an accurate indication of the force at which that rope might break in other circumstances and situations. The type and quality of terminations, the rate of force application, prior conditioning and previous force applications to the rope can significantly influence the breaking force. A rope bent around a post, capstan, pulley or sheave may break at a significantly lower force. A knot or other distortion in a rope may significantly reduce the breaking force.

Table 3 — Linear density and minimum breaking force of 8-strand braided mixed polyolefin fibre rope (type L) and 12-strand braided mixed polyolefin fibre rope (type T)

Reference number[a]	Linear density[bc]		Minimum breaking force[de] kN	
	Nominal ktex	Tolerance %	Unspliced ropes	Ropes with eye-spliced terminations
6	16,3	±10	6,9	6,2
8	29,0		12,1	10,9
10	45,3	±8	18,8	16,9
12	65,2		26,9	24,2
14	88,8		36,4	32,7
16	116	±5	47,2	42,5
18	147		59,3	53,4
20	181		72,8	65,5
22	219		87,4	78,7
24	261		104	93,6
26	306		121	109
28	355		139	125
30	408		158	142
32	464		179	161
36	587		224	202
40	725		274	247
44	877		327	294
48	1 040		385	347
52	1 220		448	403
56	1 420		514	463
60	1 630		583	525
64	1 860		657	591
68	2 100		737	663
72	2 350		820	738
80	2 900		995	896
88	3 510		1 190	1 070
96	4 170		1 400	1 260
104	4 900		1 620	1 460
112	5 680		1 880	1 690
120	6 520		2 130	1 920
128	7 420		2 420	2 180
136	8 380		2 720	2 450
144	9 390		3 040	2 740

Table 3 (*continued*)

Reference number[a]	Linear density[bc]		Minimum breaking force[de] kN	
	Nominal ktex	Tolerance %	Unspliced ropes	Ropes with eye-spliced terminations
152	10 500	±5	3 380	3 040
160	11 600		3 740	3 370

[a] The reference number corresponds to the approximate diameter, in millimetres.

[b] The linear density, in kilotex, corresponds to the net mass per length of the rope, expressed in grams per metre or in kilograms per kilometre.

[c] The linear density is obtained under reference tension and is measured as specified in ISO 2307.

[d] The breaking forces relate to new, dry and wet ropes.

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8 Marking

The marking shall be carried out in accordance with Clause 6 of ISO 9554:2005.

NATIONAL ANNEX A

(National Foreword)

A-1 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.

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 2016 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

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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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones: 2323 0131, 2323 3375, 2323 9402 *Website*: www.bis.gov.in

Regional Offices:		*Telephones*
Central	: 601/A, Konnectus Tower -1, 6th Floor, DMRC Building, Bhavbhuti Marg, New Delhi 110002	2323 7617
Eastern	: 8th Floor, Plot No 7/7 & 7/8, CP Block, Sector V, Salt Lake, Kolkata, West Bengal 700091	2367 0012 2320 9474
Northern	: Plot No. 4-A, Sector 27-B, Madhya Marg, Chandigarh 160019	265 9930
Southern	: C.I.T. Campus, IV Cross Road, Taramani, Chennai 600113	2254 1442 2254 1216
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