INTERNATIONAL STANDARD

ISO 1140

Third edition 2004-11-15

Fibre ropes — Polyamide — 3-, 4and 8-strand ropes

Cordages en fibres — Polyamide — Cordages à 3, 4 et 8 torons

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ISO 1140:2004 https://standards.iteh.ai/catalog/standards/sist/475f92e2-c21e-42f3-aaeb-9ec7d3d3c01f/iso-1140-2004



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 1140 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 248, *Textiles and textile products*, in collaboration with Technical Committee ISO/TC 38, *Textiles*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 1140 1990), which has been technically revised.

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Fibre ropes — Polyamide — 3-, 4- and 8-strand ropes

1 Scope

This International Standard specifies requirements for 3-strand hawser-laid and 4-strand shroud-laid ropes and 8-strand braided ropes for general service made of polyamide 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 — Terms and definitions

ISO 2307, Ropes — Determination of certain physical and mechanical properties

ISO 9554:-1), Fibre ropes - General specification s.iteh.ai)

ISO 1140:2004 Terms and definitions https://standards.iteh.ai/catalog/standards/sist/475f92e2-c21e-42f3-aaeb-3

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

Designation 4

Fibre ropes shall be designated by:

- the words "fibre rope";
- the number of this International Standard;
- the construction type of rope (see Clause 5);
- the reference number of the rope;
- the material from which the rope is made; the mixing of polyamide fibre types and grades shall not be permitted;
- the type of stabilisation (1 or 2 in accordance with ISO $9554:-^{1}$).

Polyamide laid ropes that are required to have a heat setting on the rope to ensure lay and dimensional stability are designated type 1 ropes; in other cases, polyamide laid ropes that are not required to have a heat setting on the rope are designated type 2 ropes.

¹⁾ To be published. (Revision of ISO 9554:1991)

EXAMPLE Designation of a 3-strand hawser-laid rope heat set (type 1), reference number 20 (type A) corresponding to a linear density of 247 ktex made of polyamide (PA):

Fibre rope ISO 1140 - A - 20 - PA - 1.

5 General requirements

- 5.1 Polyamide ropes shall be made in one of the following constructions:
- 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).

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

6 Physical properties

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

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







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

	Linea	r density ^{b, c}	Minimum has a big a fame of e f	
Reference number ^a	Nominal	Tolerance	Minimum breaking force d, e, t	
	ktex	%	kN	
4	9,87		3,70	
4,5	12,5		4,63	
5	15,4	. 40	5,64	
6	22,2	± 10	7,93	
8	39,5		13,8	
9	50,0		17,4	
10	61,7		21,2	
12	88,8	± 8	30,1	
14	121		40,0	
16	158		51,9	
18	200		64,3	
20	247		79,2	
22	299		94,0	
24	355		112	
26	417		129	
28	1 484h S I	ANDARD PRE	149 IL	
30	555	andards itah ai	169	
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48	1 420	2007/03/03/01/150-1140-2004	412	
52	1 670	+ 5	479	
56	1 930		550	
60	2 220		627	
64	2 530		709	
72	3 200		887	
80	3 950		1 080	
88	4 780		1 300	
96	5 690		1 530	
104	6 670		1 780	
112	7 740		2 050	
120	8 880		2 340	
128	10 100		2 650	
136	11 400		2 980	
144	12 800		3 320	
160	15 800		4 060	

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

^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 thousand metres.

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

^d The breaking forces quoted above relate to new dry ropes. In wet conditions, the breaking force will be lower.

^e Minimum values for the breaking force shall be reduced by 10 % in the case of a rope with eye-spliced terminations.

^f A force determined by the test methods as specified in ISO 2307 is not necessarily an accurate indication of the force at which that rope might break in other circumstances and situations. Type and quality of termination 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 might break at a significantly lower force. A knot or other distortion in a rope might significantly reduce the breaking force.

	Linear de	Minimum has dia of		
Reference number ^a	Nominal	Tolerance	Minimum breaking force a, a, t	
	ktex	%	kN	
10	61,7		19,1	
12	88,8	± 8	27,1	
14	121		36,0	
16	158		46,7	
18	200		57,9	
20	247		71,3	
22	299		84,6	
24	355		101	
26	417		116	
28	484		134	
30	555		152	
32	632		173	
36	800		216	
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48	1 420		371	
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60	2 220		564	
64	2 530		638	
72	3 200		798	
80	3 950		972	
88	4 780		1 170	
96	5 690		1 380	
104	6 670		1 600	
112	7 740		1 850	
120	8 880		2 110	
128	10 100		2 390	
136	11 400		2 680	
144	12 800		2 990	
160	15 800		3 650	

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

^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 thousand metres.

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

^d The breaking forces quoted above relate to new dry ropes. In wet conditions, the breaking force will be lower.

^e Minimum values for the breaking force shall be reduced by 10 % in the case of a rope with eye-spliced terminations.

^f A force determined by the test methods as specified in ISO 2307 is not necessarily an accurate indication of the force at which that rope might break in other circumstances and situations. Type and quality of termination 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 might break at a significantly lower force. A knot or other distortion in a rope might significantly reduce the breaking force.