INTERNATIONAL STANDARD

ISO 1141

Third edition
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Fibre ropes — Polyester — 3-, 4- and 8-strand ropes

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

Reference number
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Contents

Page

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 1141 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 1141:1990), which has been technically revised.

Fibre ropes — Polyester — 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 polyester 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*

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 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 type of stabilization (1 or 2 in accordance with ISO 9554:—[1)]).

Polyester 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, polyester 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 30 (type A) corresponding to a linear density of 682 ktex made of polyester (PES):

Fibre rope ISO 1141 - A - 30 – PES – 1.

5 General requirements

5.1 Polyester 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.

7 Marking

Type 1 ropes (reference number less than 14) shall be marked using a blue thread. For other ropes, the marking shall be in accordance with ISO 9554:—[1], Clause 6.

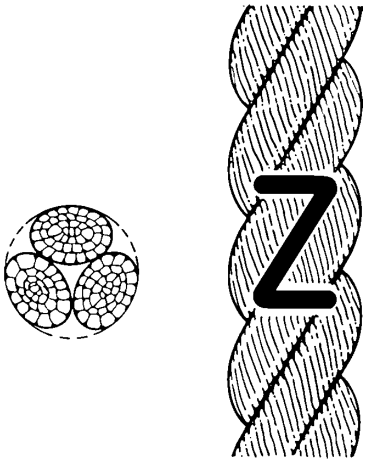

Figure 1 — Shape of a 3-strand hawser-laid rope (type A)

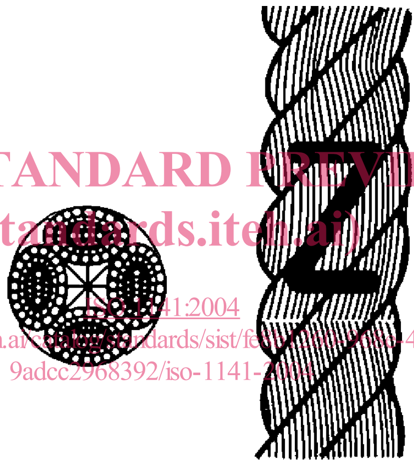

Figure 2 — Shape of a 4-strand shroud-laid rope (type B)

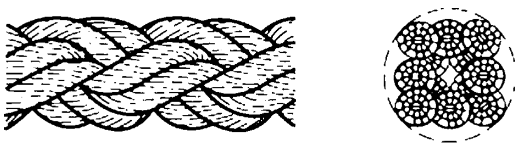

Figure 3 — Shape of an 8-strand braided rope (type L)

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

Reference number [a]	Linear density [b, c]		Minimum breaking force [d, e, f]
	Nominal	Tolerance	
	ktex	%	kN
4	12,1	± 10	2,80
4,5	15,3		3,51
5	19,0		4,27
6	27,3		6,08
8	48,5		10,5
9	61,4		13,2
10	75,8	± 8	16,2
12	109		23,0
14	149		30,9
16	194	± 5	39,8
18	246		49,9
20	303		61,0
22	367		73,1
24	437		86,1
26	512		101
28	594		116
30	682		132
32	776		150
36	982		188
40	1 210		230
44	1 470		276
48	1 750		326
52	2 050		380
56	2 380		437
60	2 730		500
64	3 100		566
72	3 930		708
80	4 850		867
88	5 870		1 040
96	6 990		1 230
104	8 200		1 430
112	9 510		1 650
120	10 900		1 880
128	12 400		2 130
136	14 000		2 390
144	15 700		2 670
160	19 400		3 260

[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 and wet ropes.

[e] Minimum values stated in individual standards 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.

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

Reference number [a]	Linear density [b, c]		Minimum breaking force [d, e, f]
	Nominal	Tolerance	
	ktex	%	kN
6	27,3	± 10	5,47
8	48,5		9,45
10	75,8	± 8	14,6
12	109		20,7
14	149		27,8
16	194	± 5	35,8
18	246		44,9
20	303		54,9
22	367		65,8
24	437		77,5
26	512		90,9
28	594		104
30	682		119
32	776		135
36	982		169
40	1 210		207
44	1 470		248
48	1 750		293
52	2 050		342
56	2 380		393
60	2 730		450
64	3 100		509
72	3 930		637
80	4 850		780
88	5 870		936
96	6 990		1 110
104	8 200		1 290
112	9 510		1 490
120	10 900		1 690
128	12 400		1 920
136	14 000		2 150
144	15 700		2 400
160	19 400		2 930

[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 and wet ropes.

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