
**Fibre ropes — Polyethylene — 3- and
4-strand ropes**

Cordages en fibres — Polyéthylène — Cordages à 3 et 4 torons



Reference number
ISO 1969:2004(E)

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Foreword

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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 1969 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 1969:1990), which has been technically revised.

Fibre ropes — Polyethylene — 3- and 4-strand ropes

1 Scope

This International Standard specifies requirements for 3-strand hawser-laid and 4-strand shroud-laid ropes for general service (excluding fittings) made of polyethylene 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.

EXAMPLE Designation of a 4-strand shroud-laid rope (type B) with a linear mass of 802 ktex corresponding to the reference number 40 made of polyethylene (PE):

Fibre rope ISO 1969 - B - 40 - PE.

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

5 General requirements

5.1 Polyethylene 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).

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

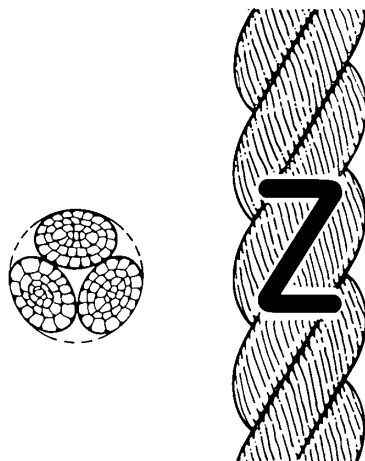


Figure 1 — Shape of a 3-strand hawser-laid rope (type A)

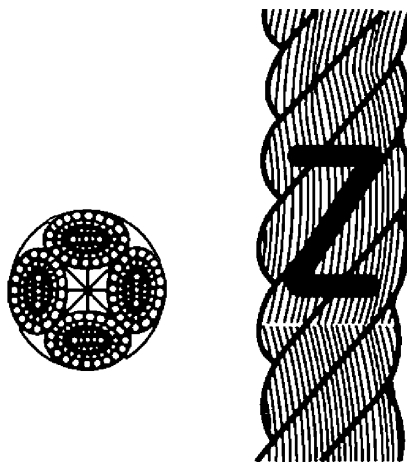


Figure 2 — Shape of a 4-strand shroud-laid rope (type B)

6 Physical properties

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

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

Reference number ^a	Linear density ^{b, c}		Minimum breaking force ^{d, e, f}
	Nominal ktex	Tolerance %	
4	8,02	± 10	1,88
4,5	10,1		2,36
5	12,5		2,89
6	18,0		4,10
8	32,1		7,11
9	40,6		8,91
10	50,1	± 8	10,9
12	72,1		15,5
14	98,2		20,9
16	128	± 5	27,0
18	162		33,8
20	200		41,3
22	242		49,8
24	289		58,8
26	339		68,4
28	393		79,2
30	451		90,3
32	513		102
36	649		128
40	802		157
44	970		188
48	1 150		222
52	1 350		259
56	1 570		299
60	1 800		341
64	2 050		386
72	2 600		484
80	3 210	592	
88	3 880	711	
96	4 620	839	

^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 polyethylene ropes (type B)

Reference number ^a	Linear density ^{b, c}		Minimum breaking force ^{d, e, f}
	Nominal ktex	Tolerance %	
10	50,1	± 8	9,81
12	72,1		14,0
14	98,2		18,8
16	128	± 5	24,3
18	162		30,4
20	200		37,2
22	242		44,8
24	289		52,9
26	339		61,6
28	393		71,3
30	451		81,3
32	513		91,8
36	649		115
40	802		141
44	970		169
48	1 150		200
52	1 360		233
56	1 570		269
60	1 800		307
64	2 050		347
72	2 600		436
80	3 210	533	
88	3 880	640	
96	4 620	755	

^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.

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7 Marking

The marking shall be carried out in accordance with ISO 9554:—²⁾, Clause 6.

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

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