INTERNATIONAL STANDARD

ISO 10556

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Fibre ropes of polyester/polyolefin dual fibres

Cordages en fibres bi-matériaux polyester/polyoléfines

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Foreword

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ISO 10556 was prepared by Technical Committee ISO/TC 38, *Textiles.*

Fibre ropes of polyester/polyolefin dual fibres

1 Scope

This International Standard specifies requirements for 3-strand hawser-laid, 8-strand and 12-strand braided fibre ropes made of polyester in combination with polyolefin, 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 the rope (see Clause 6);

— the reference number of the rope;

— the materials from which the rope is made;

— the level of performance of the rope: fibre rope or higher-strength (hs) fibre rope.

EXAMPLE 1 Designation of a 3-strand hawser-laid rope, reference number 20 (type A), corresponding to a linear density of 194 ktex, made of polyester/polyolefin dual fibre:

Fibre rope ISO 10556 - A - 20 - polyester/polyolefin

EXAMPLE 2 Designation of a 12-strand braided rope, reference number 20 (type T), corresponding to a linear density of 221 ktex, made of higher-strength polyester/polyolefin dual fibre:

Fibre rope ISO 10556 - T - 20 - polyester/polyolefin (hs)

5 Materials

5.1 Fibres

5.1.1 **Polyester**: the polyester portion of the rope shall be a continuous multifilament, heat- and light-resistant fibre of industrial (high tenacity) grade.

5.1.2 **Polyolefin**: the polyolefin portion of the rope shall be of suitable tenacity to meet all the requirements of this International Standard.

NOTE Polyolefin can be polypropylene, or a mixture of polypropylene and polyethylene with a minimum of 15 % and a maximum of 50 % of polyethylene.

5.2 Yarns

5.2.1 The cover yarns of each strand of fibre ropes shall be made with polyester fibres covering a polyolefin core and shall contain a minimum of 40 % by mass of polyester fibre (see Table 1).

NOTE When interior yarns are used, they may consist of 100 % polyolefin fibres.

5.2.2 All the yarns used in higher-strength fibre ropes shall be made with polyester fibres covering a polyolefin core and shall contain a minimum of 40 % by mass of polyester fibre (see Table 2).

6 General requirements

6.1 Polyester/polyolefin dual-fibre ropes shall be constructed in one of the following ways:

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

— type L: 8-strand braided rope (see Figure 2);

— type T: 12-strand braided rope (see Figure 3).

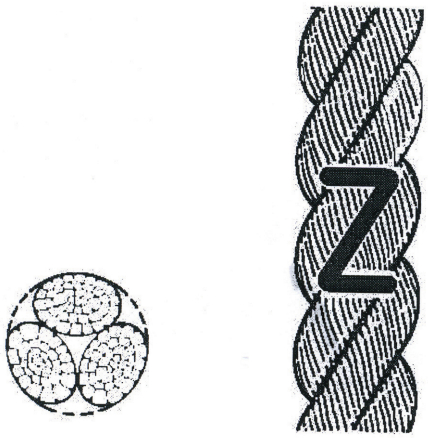
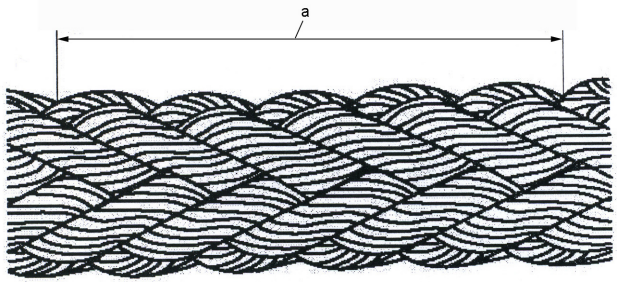


Figure 1 — Shape of a 3-strand hawser-laid rope (type A)

Figure 2 — Shape of an 8-strand braided rope (type L)



[a] One-plait pitch.

Figure 3 — 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 and 2.

Table 1 — Fibre ropes: 3-strand hawser-laid rope (type A), 8-strand braided rope (type L) and 12-strand braided rope (type T) of polyester/polyolefin dual fibres

Reference number[a]	Linear density[bc]		Minimum breaking force[de] kN	
	Nominal ktex	Tolerance %	Unspliced ropes	Ropes with eye-spliced terminations
6	17,5	±10	6,8	6,1
8	31,0		11,9	10,7
10	48,5	±8	18,2	16,4
12	69,9		25,7	23,1
14	95,1		34,7	31,2
16	124		44,8	40,3
18	157		56,1	50,5
20	194		68,7	61,8
22	235		82,1	73,9
24	279		96,3	86,7
26	328		113	102
28	380		130	117
30	437		148	133
32	497		167	150
36	629		210	189
40	776		257	231
44	939		308	277
48	1 110		364	328
52	1 320	±5	424	382
56	1 520		489	440
60	1 750		558	502
64	1 990		631	568
68	2 250		707	636
72	2 520		789	710
80	3 110		963	867
88	3 750		1 160	1 040
96	4 470		1 370	1 230
104	5 260		1 590	1 430
112	6 050		1 840	1 660
120	6 980		2 100	1 890
128	7 950		2 370	2 130
136	8 950		2 660	2 390
144	10 100		2 970	2 670

Table 1 (*continued*)

Reference number[a]	Linear density[bc]		Minimum breaking force[de] kN	
	Nominal ktex	Tolerance %	Unspliced ropes	Ropes with eye-spliced terminations
152	11 300	±5	3 290	2 960
160	12 500		3 630	3 270

[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 termination, 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 — Higher-strength fibre ropes: 3-strand hawser-laid rope (type A), 8-strand braided rope (type L) and 12-strand braided rope (type T) of polyester/polyolefin dual fibres

Reference number[a]	Linear density[bc]		Minimum breaking force[de] kN	
	Nominal ktex	Tolerance %	Unspliced ropes	Ropes with eye-spliced terminations
6	19,9	±10	7,56	6,80
8	35,4		13,2	11,9
10	55,3	±8	20,2	18,2
12	79,6		28,6	25,7
14	108	±5	38,5	34,7
16	142		49,8	44,8
18	179		62,3	56,1
20	221		76,3	68,7
22	268		91,2	82,1
24	319		107	96
26	374		125	113
28	434		144	130
30	498		164	148
32	566		186	167
36	717		233	210
40	885		285	257
44	1 070		342	308

Table 2 (*continued*)

Reference number[a]	Linear density[bc]		Minimum breaking force[de] kN	
	Nominal ktex	Tolerance %	Unspliced ropes	Ropes with eye-spliced terminations
48	1 270		404	364
52	1 500		471	424
56	1 730		543	489
60	1 990		620	558
64	2 270		701	631
68	2 560		786	707
72	2 870		877	789
80	3 540		1 070	963
88	4 280		1 290	1 160
96	5 100	±5	1 520	1 370
104	6 000		1 770	1 590
112	6 900		2 040	1 840
120	7 960		2 330	2 100
128	9 060		2 630	2 370
136	10 200		2 960	2 660
144	11 500		3 300	2 970
152	12 800		3 660	3 290
160	14 200		4 030	3 630

[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 in accordance with Clause 6 of ISO 9554:2005.

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