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**Polyester fibre ropes — Double braid  
construction**

*Cordages en fibres de polyester — Cordages coaxiaux*

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ISO 10547:2009

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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 10547 was prepared by Technical Committee ISO/TC 38, *Textiles*.

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# Polyester fibre ropes — Double braid construction

## 1 Scope

This International Standard specifies requirements for double braided ropes and for higher-strength double braided ropes 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 — 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 reference number of the rope;
- the material from which the rope is made;
- the level of strength of rope: double braided rope or higher-strength (hs) double braided rope.

EXAMPLE 1 Designation of a double braided rope, reference number 20, corresponding to a linear density of 319 ktex made of polyester:

**Fibre rope ISO 10547 - 20 - PES**

EXAMPLE 2 Designation of a higher-strength double braided rope, reference number 20, corresponding to a linear density of 319 ktex made of polyester:

**Fibre rope ISO 10547 - 20 - PES (hs)**

## 5 General requirements

### 5.1 Construction

Ropes produced in accordance with this International Standard shall be constructed in the following way.

The rope (see Figure 1) shall be of a double braided construction wherein an inner braid of hollow structure manufactured in a separate operation shall serve as the core, while a cover (outer braid) is braided over it in a second operation. The weight of either the inner braid or the outer braid shall not exceed 55 % of the total weight of the rope. It shall also conform to ISO 9554.

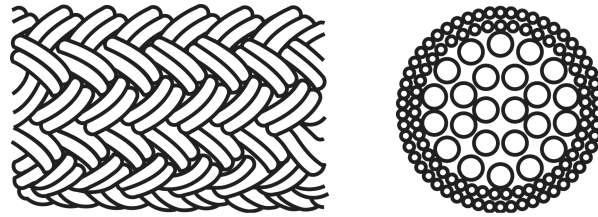


Figure 1 — Shape of a polyester double braided rope and of a polyester higher-strength double braided rope

### 5.2 Number of strands

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For ropes of reference number from 6 to 16, the minimum number of strands of outer braid shall be 16.

For ropes of reference number greater than 16, the minimum number of strands of outer braid shall be 24.

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### 5.3 Manufacture and labelling

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Manufacture, labelling, packaging, invoicing and delivered lengths shall conform to ISO 9554.

### 5.4 Strand interchange

**5.4.1** Strand interchange shall be the overlapping continuation of a single interrupted strand (or multiple strand) with another identical strand which follows the identical path in the braid. Although it is desirable that no strand interchange be present in the core or the cover of any size and length of rope, some methods of manufacture impose limitations. To compensate for these limitations, strand interchange shall be in accordance with 5.4.2 to 5.4.5.

**5.4.2** To allow for a braider malfunction, one strand interchange shall be permitted in the core and one in the cover for a standard length of 200 m or less.

**5.4.3** For lengths greater than 200 m, additional strand interchanges shall be permitted if deemed necessary by the manufacturer.

**5.4.4** In producing the strand interchanges, the distance of the overlapping shall be equivalent to 8 times the rope size number but not less than 600 mm for ropes whose reference numbers are 72 and less. Strand interchanges shall be at least 12 m apart measured from interchange centre to interchange centre.

**5.4.5** Because strand interchanges within the core are difficult to detect after application of the cover, a record of verifiable information attesting to the number of strand interchanges shall be available to an inspector.

## 6 Physical properties

The linear density and minimum breaking force shall conform to Table 1.

**Table 1 — Linear density and minimum breaking force of polyester double braided rope and polyester higher-strength double braided rope**

Reference number <sup>a</sup>	Linear density <sup>bc</sup>		Minimum breaking force <sup>de</sup>			
	Nominal ktex	Tolerance %	kN		Higher-strength double braided rope	
			Double braided rope		Unspliced ropes	Ropes with eye-spliced terminations
6	28,7	±10	6,67	6,00	8,34	7,51
8	51,0		11,6	10,4	14,5	13,0
10	79,7	±8	17,8	16,0	22,3	20,1
12	115		25,4	22,9	31,7	28,5
14	156		34,2	30,8	42,7	38,4
16	204		44,2	39,8	55,3	49,8
18	258	±5	55,5	49,9	69,4	62,5
20	319		68,0	61,2	85,0	76,5
22	386		81,6	73,4	102	92
24	459		96,8	87,1	121	109
26	539		113	102	141	127
28	625		130	117	163	147
30	717		149	134	186	167
32	816		168	151	210	189
36	1 030		211	190	264	238
40	1 280		259	233	324	292
44	1 540	311	280	389	350	
48	1 840	368	331	460	414	
52	2 160	430	387	537	483	
56	2 500	494	445	618	556	
60	2 870	566	509	707	636	
64	3 260	640	576	800	720	
72	4 130	800	720	1 000	900	
80	5 100	984	886	1 230	1 110	
88	6 170	1 180	1 060	1 480	1 330	
96	7 350	1 400	1 260	1 750	1 580	
104	8 620	1 630	1 470	2 040	1 840	
112	10 000	1 880	1 690	2 350	2 120	

Table 1 (continued)

Reference number <sup>a</sup>	Linear density <sup>bc</sup>		Minimum breaking force <sup>de</sup>			
	Nominal ktex	Tolerance %	Double braided rope		Higher-strength double braided rope	
			Unspliced ropes	Ropes with eye-spliced terminations	Unspliced ropes	Ropes with eye-spliced terminations
120	11 500	±5	2 150	1 940	2 690	2 420
128	13 100		2 430	2 190	3 040	2 740
144	16 500		3 050	2 750	3 810	3 430
168	22 500		4 100	3 690	5 130	4 620
192	29 400		5 340	4 810	6 680	6 010
216	37 300		6 700	6 030	8 380	7 540
240	46 000		8 200	7 380	10 300	9 270

<sup>a</sup> The reference number corresponds to the approximate diameter, in millimetres.

<sup>b</sup> 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.

<sup>c</sup> The linear density is obtained under reference tension and is measured as specified in ISO 2307.

<sup>d</sup> The breaking forces relate to new, dry and wet ropes.

<sup>e</sup> 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.

## 7 Marking

### 7.1 Polyester double braided ropes

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

### 7.2 Polyester higher-strength double braided ropes

**7.2.1** For higher-strength ropes with a reference number of less than 14, a central marker yarn in a blue colour shall be incorporated into the centre of the rope.

**7.2.2** For higher-strength ropes with a reference number greater than or equal to 14, the quality identification on the marker tape shall indicate higher strength (hs).



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