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Fibre ropes for offshore stationkeeping —

Part 2: Polyester

Cordages en fibres pour le maintien en position des structures marines —

Partie 2: Polyester

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

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

This first edition of ISO 18692-2, together with ISO 18692-1, cancels and replaces the first edition of ISO 18692:2007, which has been technically revised.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

A list of all parts in the ISO 18692 series can be found on the ISO website.

Fibre ropes for offshore stationkeeping —

Part 2:
Polyester

1 Scope

This document specifies the main characteristics and test methods of new polyester fibre ropes used for offshore stationkeeping.

NOTE Additional information and guidance can be found in Annex B.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 18692-1:2018, *Fibre ropes for offshore stationkeeping — Part 1: General specification*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1968 and ISO 18692-1 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Materials

The fibre used in the rope shall be high-tenacity polyester fibre, with an average tenacity not less than 0,78 N/tex and qualified and tested in accordance with Annex A and ISO 18692-1:2018, Annex A.

Rope cover material and other materials employed in rope assembly shall be in accordance with ISO 18692-1.

5 Requirements — rope properties

5.1 Minimum breaking strength

The minimum breaking strength of the rope, when tested according to ISO 18692-1, shall conform to Table 1.

Table 1 — Minimum breaking strength (MBS)

Reference number[a]	Minimum breaking strength kN
106	3 140
118	3 920
132	4 900
150	6 180
160	6 960
170	7 850
180	8 830
190	9 810
200	11 000
212	12 300
224	13 700
236	15 700
250	17 700
265	19 600

[a] The reference number corresponds to the approximate outer diameter of the rope, in millimetres (mm). Actual diameters may vary for a given reference number.

5.2 Minimum core tenacity

The rope minimum core tenacity shall be 0,47 N/tex, measured according to ISO 18692-1.

All samples tested shall conform with this minimum value.

5.3 Dynamic stiffness at end of bedding-in

The dynamic stiffness at the end of the bedding-in sequence, obtained according to ISO 18692-1, shall be between 18 and 28.

A different range may be specified by the purchaser.

5.4 Torque properties

Torque-neutral rope or torque-matched rope shall be as defined in ISO 18692-1.

5.5 Cyclic loading performance

The rope shall have demonstrated performance under cycling loading following the requirements of ISO 18692-1.

5.6 Particle ingress protection

Unless otherwise specified, the rope shall be constructed with a protection of the core against the ingress of particles in accordance with ISO 18692-1.

6 Requirements — Rope layout and construction

Rope layout and construction shall be in accordance with ISO 18692-1.

7 Rope testing

7.1 Type test

7.1.1 General

Type tests shall be performed in accordance with ISO 18692-1 and the specific requirements of the present clause.

7.1.2 Sampling

The number of rope samples to be tested is given in Table 2.

Table 2 — Number of samples for testing

Test	Number of samples
Breaking strength, core tenacity and stiffness[c]	3
Torque properties[a]	1
Linear density	1
Cyclic loading endurance[b]	1

[a] See ISO 18692-1:2018, 7.1.4.

[b] See ISO 18692-1:2018, 7.1.6.

[c] See ISO 18692-1:2018, B.3.5.4.

7.1.3 Breaking strength, core tenacity and stiffness tests

The number of samples from Table 2 shall be tested, and each sample shall be capable of meeting the requirements of 5.1 (minimum breaking strength), of 5.2 (minimum core tenacity) and of 5.3 (dynamic stiffness at end of bedding-in).

7.1.4 Cyclic loading endurance test

The cyclic loading endurance test shall be performed according to the procedure specified in ISO 18692-1.

The residual strength of the rope shall be not less than 80 % of the MBS.

7.1.5 Linear density test

The linear density shall be calculated from the measured weight and length according to the method defined in ISO 18692-1:2018, B.4.

7.1.6 Protective cover thickness

The thickness of the protective cover shall be verified according to the method defined in ISO 18692-1:2018, 7.1.7.

7.2 Testing of current production

Testing of current production shall be in accordance with ISO 18692-1.

8 Report

The report shall be in accordance with ISO 18692-1.

9 Certification

The certificate of approval and control issued by a Recognized Classification Society (RCS) shall be in accordance with ISO 18692-1.

10 Marking, labelling and packaging

The marking, labelling and packaging shall be in accordance with ISO 18692-1.

Annex A
(normative)

Fibre qualification and testing

A.1 General

Fibre qualification and testing shall be in accordance with ISO 18692-1:2018, Annex A, and the following requirements.

A.2 Fibre testing (yarn-on-yarn abrasion performance — marine grade fibres)

A.2.1 Qualification testing (efficiency)

Qualification testing for efficiency of finish shall be performed on wet yarns in accordance with ISO 18692-1:2018, Annex A.

The mean number of cycles to failure as defined in ASTM D 6611, at each load level shall be above the minimum number of cycles given in Figure A.1 for that level.

The number of cycles to failure, N, shown in Figure A.1 is given by the Formula (A.1).

$$LogN = 4,6 - \left(\frac{F_{\text{test}}}{36} \right) \tag{A.1}$$

where F_{test} is the test load, expressed in millinewtons per tex (mN/tex).

A.2.2 Qualification testing (persistence)

The persistence of the marine finish in a marine environment shall be demonstrated.

The assessment method shall be duly documented by the fibre producer.

Yarn-on-yarn abrasion tests after accelerated (artificial) washing off may be used.

A.2.3 Testing of current production

When a yarn-on-yarn abrasion test is used to verify the effectiveness of the application of the marine finish during fibre production, the acceptance level shall be not less than the one given in Figure A.1 for that load level.