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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.

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 <u>documentsdocument</u> should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see <u>www.iso.org/directives</u>www.iso.org/directives).

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For an explanation of 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 <u>www.iso.org/iso/foreword.html</u>.

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

This first edition of ISO 18692-4 cancels and replaces ISO/TS 19336:2015, which has been technically revised.

The main changes compared to the previous edition-are as follows:

 — the document previously published as a Technical Specification has been reorganized as the new ISO-18692-4, taking into account the content of ISO 18692-1:2018.

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

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.

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ISO/FDIS 18692-4:2023(E)	
Fibre ropes for offshore stationkeeping—	
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1 Scope	
This document specifies main characteristics and test methods of polyarylate fibre ropes used for offshore stationkeeping.	Formatted: Adjust space between Latin and Asian text, Adjust space between Asian text and numbers, Tab stops: Not at 0.5 cm
2 Normative references	Formatted: Adjust space between Latin and Asian text, Adjust space between Asian text and numbers
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melt spinning Note-1toentry:An example of polyarylate chemical structure shows in Figure 1.Figure 1.	Formatted: Widow/Orphan control, Adjust space between Latin and Asian text, Adjust space between Asian text and numbers
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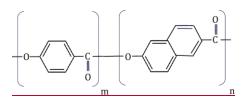


Figure 1 — Polyarylate chemical structure

3.2

axial compression fatigue

failure mode for fibre rope such as polyarylate under low tension or compression

4 Materials

The fibre used in the core of the rope shall be polyarylate fibre, with an average tenacity of not less than 1,8-N/tex, and qualified and tested in accordance with <u>Annex A</u>.

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

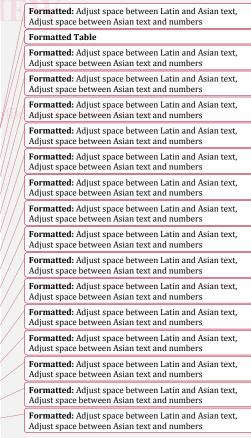
5 Requirements — Rope properties

5.1 Minimum breaking strength

The minimum breaking strength (MBS) of the rope (spliced), when tested according to ISO-<u>18692-1</u>, shall conform to <u>Table 1Table 1</u>.

https://stane Table 1 — Minimum breaking strength (MBS) 216af4-10d0-49b

Reference number (RN) ^a	Minimum breaking strength kN
80	2 500
90	3 100
100	3 900
106	4 400
112	5 000
118	5 600
125	6 300
132	7 000
140	7 800
150	8 700
160	10 000
170	11 200
180	12 500
190	14 000
200	15 500



Reference number (RN) ^a	Minimum breaking strength kN
212	17 500
224	19 500
aThe reference number corresponds to the millimetres (mm). Actual diameters may vary fi	he approximate outer diameter of the rope, in or a given reference number.

5.2 Minimum core tenacity

The minimum tenacity of the polyarylate rope core shall be 0,90 N/tex, measured according to ISO 18692-1. All samples tested shall comply with this minimum value.

5.3 Axial compression fatigue properties

The rope shall have demonstrated a residual strength not less than 95 % of MBS, following the axial compression fatigue test method in Annex BAnnex B and additional information in Annex C.

5.4 Torque properties

Torque-neutral rope or torque-matched rope shall be defined according to ISO-<u>18692-1</u>.

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 JSO 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 this clause.

7.1.2 Sampling

The number of rope samples to be tested is given in <u>Table 2</u>Table 2.

Table 2 — Number of samples for testing

Test	Number of samples
Breaking strength, core tenacity and stiffness ${}^{\rm d}_{\bigstar}$	3
Axial compression fatigue ^a	1
Torque properties ^b	1
Linear density	1

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Test	Number of samples		Formatted: Adjust space between Latin and Asian text,
Cyclic loading endurance ^c	1		Adjust space between Asian text and numbers
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7.1.3 Breaking strength, core tenacity, and stiffness tests

The number of samples from Table 2 Table 2 shall be tested, and each sample shall be capable of meeting the requirements of 5.15.1 and of 5.2.5.2.

NOTE____The measurements of the dynamic stiffness at end of bedding-in — and, when required, those of the quasi-static stiffness and the dynamic stiffness at several mean load level — are performed for design purposes only. There are no acceptance criteria on these parameters.

7.1.4 Axial compression fatigue properties test

One sample shall be tested for axial compression fatigue properties.

ThisThere is no need to perform this test needs not to be performed when data are available from the previous qualification test of another rope with the same design, material and method of manufacture of rope core, and a size not less than reference number 90.

7.1.5 Torque properties tests

Where applicable, torque properties tests shall be performed according to the procedure specified in ISO 18692-1:2018, 7.1.4 and Annex B.

7.1.6 Linear density test

SO 18692-4

The linear density shall be calculated from the measured mass and elongation according to the method defined in JSO 18692-1:2018, 7.1.5 and Annex B.

7.1.7 Cyclic loading endurance test

The cyclic loading endurance test shall be performed according to the procedure specified in <u>ISO 18692-4</u> <u>1</u>.

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

7.1.8 Protective cover thickness

The thickness of the protective cover shall be verified. See JSO 18692-1:2018, 7.1.7.

7.1.9 Particle ingress protection

See 5.4 See 5.4 and ISO 18692-1:2018, Annex B.

7.2 Testing of current production

Testing of current production shall be in accordance with JSO 18692-1:2018, 7.2.

8 Report

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

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