INTERNATIONAL STANDARD

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Second edition
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Fibre ropes — High modulus polyethylene — 8-strand braided ropes, 12-strand braided ropes and covered ropes

Cordages en fibres — Polyéthylène à haut module — Cordages tressés à 8 torons, cordages tressés à 12 torons et cordages avec couverture

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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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 second edition cancels and replaces the first edition (ISO 10325:2009), which has been technically revised. The main changes compared to the previous edition are as follows:

— Scope: a statement indicating that other commonly used types and grades of HMPE may be out of the coverage of this document has been added;

— Clause 3: the term “heat-set ropes” has been added;

— Table 1: the linear density and minimum breaking strength values has been modified.

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.

Fibre ropes — High modulus polyethylene — 8-strand braided ropes, 12-strand braided ropes and covered ropes

1 Scope

This document specifies requirements for 8-strand braided ropes, for 12-strand braided ropes, and for covered rope constructions for general purpose made of high modulus polyethylene (HMPE), and gives rules for their designation.

Many different types and grades of HMPE fibre exist which are commonly used to produce rope products. This document does not cover all variations in strength or product performance. The rope manufacturer is consulted to ensure the intended design meets the requirements of the application.

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 2307, *Fibre ropes — Determination of certain physical and mechanical properties*

ISO 9554:2010, *Fibre ropes — General specifications*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1968 and the following 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/

3.1
cover
jacket
braided cover or other protective layer, which is placed over the rope core

Note 1 to entry: The cover has no significant contribution to the rope strength.

3.2
heat-set rope
rope with properties that have been modified by applying heat simultaneously with the addition of a controlled strained force

4 Designation fibre ropes

Fibre ropes shall be designated by the following:

— the words “fibre rope”;

— the number of this document, i.e. ISO 10325;

— the construction type of the rope;

— the reference number of the rope;

— the material from which the rope is made;

— the type of stabilization (type 1 or type 2).

HMPE ropes that have been heat set are designated as type 1 ropes. HMPE ropes that have not been heat set are designated as type 2 ropes.

EXAMPLE Designation of a 12-strand braided rope, reference number 20 (type T), corresponding to a linear density of 232 ktex made of high modulus polyethylene (HMPE) that has not been heat set:

Fibre rope ISO 10325 - T - 20 - HMPE - 2

5 Material

5.1 The ropes, or load bearing core of the rope, shall be made of continuous filament HMPE fibres.

5.2 Coating is typically applied to the rope for property enhancement purposes.

5.3 Concerning covered ropes, the cover may consist of a variety of fibre materials, for example, polyester, polyolefins, HMPE, and may be of varying thicknesses, depending on the requirements of the application. Core constructions may vary significantly also and include such designs as a single core or multiple cores. Consult the rope manufacturer to ensure the intended cover design meets the requirements of the application.

5.4 The typical characteristics of high modulus polyethylene fibre are indicated in ISO 9554:2010, Table A.1.

5.5 Heat setting may be done on HMPE ropes in order to increase the break strength per unit weight. A rope that has been heat set will have higher break strength for the same diameter as a non-heat-set rope, however the overall life time of the rope may be decreased. Consult the rope manufacturer to ensure the intended design meets the requirements of the application. Properties of heat-set ropes are not included in this document.

NOTE 1 Ropes constructed from 100 % HMPE fibres float. However, covered HMPE ropes can have a higher specific gravity and might sink.

NOTE 2 HMPE fibres have a low coefficient of friction and good abrasion resistance. The coefficient of friction can be altered by applying suitable coatings.

Different HMPE fibre grades may have different creep properties. If requested, the manufacturer shall provide information about creep properties.

6 General requirements

6.1 General

HMPE fibre ropes shall be made in one of the following constructions:

— type L: 8-strand braided ropes (see Figure 1);

— type T: 12-strand braided ropes (see Figure 2);

— type C: covered ropes [see Figures 3 a) and 3 b)].