



**International
Standard**

ISO 4345

**Steel wire ropes — Fibre main cores
— Specifications**

Câbles en acier — Âmes centrales textiles — Spécifications

**Third edition
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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 document 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 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 105, *Steel wire ropes*.

This third edition cancels and replaces the second edition (ISO 4345:1988), which has been technically revised.

The main changes are as follows:

- the tolerances for length and nominal diameter have been modified;
- the technical indicator and test method of moisture regain have been added;
- the test method and formula of water solution acid have been modified;
- the formula for calculating salt content has been added;
- the term "runnage" has been replaced by "linear density".

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.

Steel wire ropes — Fibre main cores — Specifications

1 Scope

This document specifies the construction and characteristics of fibre main cores for steel wire ropes using two types of fibre:

- a) natural fibre;
- b) man-made fibre.

This document is not applicable to ropes for mine hoisting purposes.

NOTE Fibre cores are adversely affected by high ambient temperatures. When selecting fibre cores, the limitation of specific fibres, in this respect, must be recognized.

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 139, *Textiles — Standard atmospheres for conditioning and testing*

ISO 1968, *Fibre ropes and cordage — Vocabulary*

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 terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

water soluble acid

amount of soluble acid in water that can be adequately extracted from the fibre cores, expressed as the volume of sodium hydroxide or potassium hydroxide solution (with a concentration of 0,1 mol/L) that is used to neutralize the soluble acid extracted from a sample of 100 g

3.2

moisture regain

mass of water in any form in the fibre core material, determined using prescribed methods and expressed as a percentage of the mass of water to the absolute dry mass of the fibre core material

3.3

lubricant content

mass of lubricant absorbed in the fibre core material, expressed as a percentage of the mass of lubricant to the absolute dry mass of the fibre core material

4 Material

4.1 Natural fibre cores

Natural fibre cores shall be made from new hard fibres or some specific soft fibres of the following types:

- a) Sisal (*Agave sisalana*);
- b) Abaca; Manila hemp (*Musa textilis*);
- c) Jute.

4.2 Man-made fibre cores

Man-made fibre cores shall be made entirely from new fibres of the following types:

- a) fibre-forming polyolefines (i.e. monofilament, film or fibrillated film of polyethylene, polypropylene, etc.);
- b) any suitable alternative materials agreed between core purchaser and core supplier.

NOTE Mixed fibre cores are produced by mixing natural fibre and man-made fibre agreed between core purchaser and core manufacturer.

5 Construction

Main cores conforming to this document shall be laid up from at least three strands. Each coil shall be continuous throughout its length without core splices.

6 Core designation (<https://standards.iteh.ai>)

The core shall be designated by its nominal diameter, nominal linear density, type of fibre main cores, construction and direction of twist. These shall be agreed between the core manufacturer and the steel wire rope manufacturer. The core manufacturer shall state whether the linear density is based on the lubricated or unlubricated core.

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7 Tolerances

7.1 Tolerance on length

The length of core supplied shall be equivalent to the specified length subject to the following tolerances as given in [Table 1](#).

Table 1 — Tolerance on length

Length, <i>L</i>	Tolerance
$L \leq 400$ m	+5 % 0
$400 \text{ m} < L \leq 1\,000$ m	+20 m 0
$L > 1\,000$ m	+2 % 0

7.2 Tolerance on nominal diameter

The tolerance on nominal diameter shall be as given in [Table 2](#). Diameter shall be measured in accordance with the method specified in [Annex A](#).