
**Textile slings — Lifting slings for
general purpose lifting operations
made from fibre ropes — High
modulus polyethylene (HMPE)**

*Élingues textiles — Élingues de levage pour opérations de levage
pour usage général en cordages en fibres — Polyéthylène à haut
module (HMPE)*

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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 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 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.

The committee responsible for this document is ISO/TC 38, *Textiles*.

Introduction

This International Standard has been prepared to be a standard providing one means of complying with the essential safety requirements.

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Textile slings — Lifting slings for general purpose lifting operations made from fibre ropes — High modulus polyethylene (HMPE)

1 Scope

This International Standard specifies the requirements related to safety, including methods of rating and testing eye-and-eye and endless sling constructions used as single (1) leg, two (2) leg, three (3) leg or four (4) leg lifting configurations (with and without fittings). These sling constructions are made of 8-strand braided ropes (type L), 12-strand braided ropes (type T), covered rope constructions (type C) according to ISO 10325. Alternatively, other laid and braided rope constructions deviating from ISO 10325, but tested according to ISO 2307, may be used. This International Standard is applicable to rope constructions made of High Modulus Polyethylene [HMPE, also referred to as Ultra High Molecular Weight Polyethylene (UHMWPE)] fibre having a minimum reference number of 12 and a maximum reference number of 72, even though there is no direct link between rope reference numbers and the type of lifting operations, either general-purpose or special lifting operations.

Parts of the braided load bearing constructions in such slings, or the whole sling, can be enclosed in a protective cover/jacket/sleeve. The protective cover/jacket/sleeve is designed to be non-load bearing as it is intended only for protection and containment of the load bearing core.

The fibre rope slings covered by this International Standard are intended for general-purpose lifting operations only, i.e. when used for lifting objects, materials or goods which require no deviations from the requirements, safety factors, also referred to as design factors, or work load limits specified.

Lifting operations not covered by this International Standard would include the lifting of persons, potentially dangerous materials such as molten metal and acids, glass sheets, fissile materials, nuclear reactors and special lifting operations.

This International Standard deals with the technical requirements to minimize the hazards listed in [Clause 4](#) which can arise during the use of fibre rope slings when carried out in accordance with the instructions and specification given by the manufacturer, its authorized representative or qualified and/or competent person.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 2076, *Textiles — Man-made fibres — Generic names*

ISO 2262, *General purpose thimbles for use with steel wire ropes — Specification*

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

ISO 2415, *Forged shackles for general lifting purposes — Dee shackles and bow shackles*

ISO 7500-1, *Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and verification of the force-measuring system*

ISO 7597, *Forged steel lifting hooks with latch, grade 8*

ISO 8539, *Forged steel lifting components for use with Grade 8 chain*

ISO 10325, *Fibre ropes — High modulus polyethylene — 8-strand braided ropes, 12-strand braided ropes and covered ropes*

ISO 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction*

ISO 12480-1, *Cranes — Safe use — Part 1: General*

ISO 16798, *Links of Grade 8 for use with slings*

3 Terms and definitions

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

3.1

abnormal operating conditions

environmental conditions that are unfavourable, harmful or detrimental to or for the operation of sling assemblies, such as excessively high ambient temperature, exposure to chemicals, dust laden atmospheres and hazardous locations

3.2

abrasion

mechanical wearing of a surface resulting from frictional contact with other materials and objects

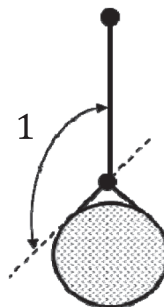
3.3

angle of choke

α_{CHOKE}

angle formed in a sling body as it passes through the choking eye or fittings

Note 1 to entry: See [Figure 1](#) and [Figure 4](#).



Key

1 α_{CHOKE}

Figure 1 — Example of angle of choke

3.4

angle of loading

horizontal angle

α

angle formed by the sling leg with the horizontal line

Note 1 to entry: See [Figure 2](#).