

This is a preview of "ISO 2408:2017". [Click here to purchase the full version from the ANSI store.](#)

Fourth edition
2017-06

Steel wire ropes — Requirements

Câbles en acier — Exigences



Reference number
ISO 2408:2017(E)

© ISO 2017

This is a preview of "ISO 2408:2017". Click here to purchase the full version from the ANSI store.



COPYRIGHT PROTECTED DOCUMENT

© ISO 2017, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

This is a preview of "ISO 2408:2017". Click here to purchase the full version from the ANSI store.

Contents

	Page
Foreword	v
Introduction	vii
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Requirements	2
4.1 Material	2
4.1.1 Wire	2
4.1.2 Core	2
4.1.3 Lubricant	2
4.2 Rope manufacture	2
4.2.1 General	2
4.2.2 Wire joints	3
4.2.3 Lubrication	3
4.2.4 Preformation and postformation	3
4.2.5 Construction	3
4.2.6 Grade	3
4.2.7 Wire finish	3
4.2.8 Direction and type of lay	4
4.3 Designation and classification	4
4.4 Dimensions	4
4.4.1 Diameter	4
4.4.2 Lay length	5
4.4.3 Rope length	6
4.5 Breaking force	6
4.5.1 General	6
4.5.2 Ropes produced in series	6
5 Verification of requirements and test methods	7
5.1 Materials	7
5.2 Rope manufacture	7
5.3 Test on rope for diameter	7
5.4 Test on rope for breaking force	8
5.4.1 Method 1: Measured breaking force, F_m	8
5.4.2 Method 2: Calculated measured (post-spin) breaking force	8
5.4.3 Method 3: Calculated measured (pre-spin) breaking force	9
5.4.4 Method 4: Measured aggregate breaking force, $F_{e,m}$	9
6 Information for use	9
6.1 Certificate	9
6.1.1 General	9
6.1.2 Test results	10
6.2 Packaging and marking	10
6.2.1 Packaging	10
6.2.2 Marking	10
Annex A (normative) Dimensional and mechanical properties of round wires (before rope making)	12
Annex B (normative) Sampling and acceptance criteria for type testing of ropes produced in series	15
Annex C (normative) Calculation of minimum breaking force for ropes in the tables of Annex D and Annex H	17

This is a preview of "ISO 2408:2017". [Click here to purchase the full version from the ANSI store.](#)

Annex D (normative) Tables of minimum breaking forces for more common rope classes, sizes and grades	20
Annex E (informative) Tests on wires taken from the rope	43
Annex F (informative) Comparison between metric and imperial rope sizes	45
Annex G (informative) Rope grade approximations	47
Annex H (informative) Large diameter wire ropes	48
Bibliography	50

This is a preview of "ISO 2408:2017". Click here to purchase the full version from the ANSI store.

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 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 105, *Steel wire ropes*.

This fourth edition cancels and replaces the third edition (ISO 2408:2004), which has been technically revised with the following main changes:

- “general purposes” and “minimum” have been deleted from the title;
- “oil and gas industry and fishing” has been deleted in the scope;
- the definitions of “calculated aggregate minimum breaking force of core, F_0 ” have been increased;
- in [Table 1](#), Rope grade 2160 has been increased to 2 360 MPa;
- the sentence “All wires of the same nominal diameter in the same wire layer shall be of the same tensile strength grade.” in [4.1.1](#) has been deleted;
- in [4.2.2](#), the sentence “Twisting for wires up to and including 0,4 mm, and brazing for wires over 0,4 mm,” has been deleted and has been replaced with “the minimum distance between wire joints within one strand shall be $20 \times d$ ”;
- “type” has been used to replace “duty” in [4.2.3](#), and the sentence “The purchaser should specify the rope duty or any particular lubrication requirements” has been deleted;
- “Zn-Al coated” has been increased in [4.2.7](#);
- note d) in [4.5.1](#) has been deleted;
- the “breaking force testing requirements without ISO quality system” column in [Table 4](#) has been deleted;
- the requirement of measuring instrument for diameter measurement in [5.3](#) has been increased;

This is a preview of "ISO 2408:2017". Click here to purchase the full version from the ANSI store.

- these sentences in [5.4.1](#) have been deleted:
 - “a) the selected test piece shall have its ends secured to ensure that the rope does not unravel;
 - b) the minimum free test length excluding any rope terminations shall be 600 mm or $30 \times$ nominal rope diameter, whichever is the greater;
 - c) after 80 % of the minimum breaking force has been applied, the force shall be increased at a rate of not more than 0,5 % of the minimum breaking force per second”;
- the “measured aggregate breaking force, $F_{e,m}$ ” in [5.4.4](#) has been increased;
- in [6.1.1](#), g) maximum wire diameter and h) metallic cross-sectional area have been added;
- in [6.1.2](#) b) mass of coating, “(if applicable)” has been added;
- markings have been detailed in [6.2](#);
- the sentence “The value of wire exceeding the grades in the table should be agreed by the supplier and purchaser” has been added in [Annex A](#);
- [B.2](#) has been added in [Annex B](#);
- in [Annex C](#) (previously Annex D), the metallic cross-section ratio, the weight ratio, and the calculating ratio for compacted strand wire rope columns have been added;
- in [Annex D](#) (previously Annex C), 6×19 M, 8×7 , $18 \times 19S$, $18 \times 19W$, $36(M) \times 7$ have been added in rope construction and tables for 4×19 class, 4×36 class and $K4 \times 35N$ class have been added;
- “rope grade equivalents” has been changed to “rope grade approximations” in [Annex G](#), and a note has been added;
- [Annex H](#) has been added;
- editorial revisions have been made.

This is a preview of "ISO 2408:2017". [Click here to purchase the full version from the ANSI store.](#)

Introduction

This document was developed in response to a worldwide demand for a specification giving requirements for steel wire ropes.

As in previous editions, this document specifies metric sizes and grades of rope for the more common classes of rope; see [Annex F](#). A comparison of rope grades is provided in [Annex G](#).