

This is a preview of "ISO 4344:2022". [Click here to purchase the full version from the ANSI store.](#)

Third edition  
2022-12

---

---

## Steel wire ropes for lifts — Minimum requirements

*Câbles en acier pour ascenseur — Exigences minimales*



Reference number  
ISO 4344:2022(E)

© ISO 2022



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2022

All rights reserved. Unless otherwise specified, or required in the context of its implementation, 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  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

This is a preview of "ISO 4344:2022". [Click here to purchase the full version from the ANSI store.](#)

## Contents

	Page
<b>Foreword</b> .....	<b>v</b>
<b>Introduction</b> .....	<b>vi</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Requirements</b> .....	<b>2</b>
4.1 Material.....	2
4.1.1 Wire.....	2
4.1.2 Core.....	2
4.1.3 Lubricant.....	3
4.2 Rope manufacture.....	3
4.2.1 General.....	3
4.2.2 Wire joints.....	4
4.2.3 Fibre core joints.....	4
4.2.4 Lubrication.....	4
4.2.5 Preformation and postformation.....	4
4.2.6 Prestretching load limit.....	4
4.2.7 Rope ends.....	4
4.2.8 Rope construction.....	4
4.2.9 Rope grade.....	5
4.2.10 Type and direction of lay.....	5
4.2.11 Lay length.....	6
4.3 Designation and classification.....	6
4.4 Dimensions.....	6
4.4.1 Diameter.....	6
4.4.2 Length.....	7
4.5 Minimum breaking force.....	7
4.6 Wire tensile strength.....	8
4.7 Rope stretch.....	8
<b>5 Verification of requirements and test methods</b> .....	<b>8</b>
5.1 Materials.....	8
5.2 Test on rope for diameter.....	8
5.2.1 Equipment.....	8
5.2.2 Measured diameter.....	8
5.2.3 Ovality.....	9
5.2.4 Variation.....	9
5.3 Test on rope for breaking force.....	9
5.4 Test on rope for lubricant content.....	9
5.5 Test on rope for wire tensile strength.....	9
5.6 Additional test.....	9
<b>6 Sampling and acceptance criteria</b> .....	<b>9</b>
<b>7 Information for use</b> .....	<b>9</b>
7.1 Certificate.....	9
7.1.1 General.....	9
7.1.2 Test results.....	10
7.2 Information for selection, installation, maintenance.....	10
7.3 Discard criteria.....	10
7.4 Marking.....	10
7.5 Information recommended to be provided for an enquiry or an order.....	10
<b>Annex A (normative) Determination of lubricant content: gravimetric method</b> .....	<b>11</b>

This is a preview of "ISO 4344:2022". [Click here to purchase the full version from the ANSI store.](#)

<b>Annex B</b> (normative) <b>Tables of minimum breaking force values for the more common classes, diameters and grade of ropes</b> .....	<b>14</b>
<b>Annex C</b> (normative) <b>Calculation of minimum breaking force</b> .....	<b>26</b>
<b>Annex D</b> (informative) <b>Calculation of approximate rope length mass, nominal metallic cross-sectional area and approximate outer wire size</b> .....	<b>27</b>
<b>Annex E</b> (informative) <b>Determination of construction stretch and elastic stretch</b> .....	<b>28</b>
<b>Annex F</b> (informative) <b>Information for selection, storage, transportation, installation and maintenance for lift ropes</b> .....	<b>30</b>
<b>Annex G</b> (normative) <b>Discard criteria for lift ropes</b> .....	<b>32</b>
<b>Annex H</b> (informative) <b>Information recommended to be provided with an enquiry or order</b> .....	<b>34</b>
<b>Bibliography</b> .....	<b>35</b>

This is a preview of "ISO 4344:2022". 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](http://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](http://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 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](http://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 4344:2004), which has been technically revised.

The main changes are as follows:

- added more rope grades commonly used in lifts and deleted rope grades rarely used in lifts;
- added more rope constructions commonly used in lifts;
- revised the requirement of lubricant content for rope cores;
- added the requirement of lubricant content for strands;
- revised diameter tolerances of steel core ropes;
- added the requirement of tensile strength for wires after rope making;
- added the information for rope selection, installation and maintenance;
- revised rope discard criteria.

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](http://www.iso.org/members.html).

## Introduction

This document was developed in response to a worldwide demand for a specification giving minimum requirements for ropes for use on lifts.

It is desirable in such cases that the equipment designer, rope manufacturer or other competent person be consulted prior to ordering a rope.

This document does not limit itself to those classes and constructions covered by the tables.

Other stranded rope constructions may also conform to the minimum requirements, and in such cases the manufacturer would specify the minimum breaking force and rope grade.