

SINGAPORE STANDARD

Steel wire ropes for hoisting

– Part 1 : Specification for steel wire ropes



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The General Engineering and Safety Standards Committee, appointed by the Standards Council, consists of the following members:

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Chairman	: Mr Chan Yew Kwong	<i>Member, Standards Council</i>
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Secretary	: Ms Kong Wai Yee	<i>Singapore Manufacturing Federation – Standards Development Organisation</i>
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	Mr Tan Kee Pin	<i>National Environment Agency</i>
	Mr Tay Cheng Pheng	<i>Society of Loss Prevention in the Process Industries</i>
	Mr Wong Choon Kin	<i>Singapore Manufacturing Federation</i>
	Mr Victor Yeow	<i>Association of Small and Medium Enterprises</i>
	Assoc Prof Zhou Wei	<i>Singapore Welding Society</i>

The Technical Committee on Safety and Health Involving the Use of Equipment, appointed by the General Engineering and Safety Standards Committee and responsible for the preparation of this standard, consists of representatives from the following organisations:

	Name	Capacity
Chairman	: Assoc Prof Hoon Kay Hiang	<i>General Engineering and Safety Standards Committee</i>
Secretary	: Ms Julia Yeo	<i>Singapore Manufacturing Federation – Standards Development Organisation</i>
Members	: Mr Ang Choon Huat	<i>Building and Construction Authority</i>
	Mr Choo Choong Huat	<i>Singapore Institution of Safety Officers</i>
	Mr Idilfitri Bin Mohammed Yatim	<i>Singapore Manufacturing Federation</i>
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	Mr Patrick Phoa	<i>Land Transport Authority</i>
	Mr Seah Chong An	<i>TÜV SÜD PSB Pte Ltd</i>
	Mr Alex Teo	<i>Association of Singapore Marine Industries</i>

The Working Group, appointed by the Technical Committee to assist in the preparation of this standard, comprises the following experts who contribute in their *individual capacity*:

	Name
Convenor	: Er. Yeo Kheng Hock Alvin
Members	: Mr Ang Ban Gee
	Mr Han Kin Sew
	Mr Joseph Ho Boon Kiat
	Mr Koh Ghee Yong
	Mr Kum Yee Lum, Greg
	Er. Winson Lee Soo Hui
	Er. Theresa Liew
	Mr Lim Kuok Wei
	Dr Sun Qiqing
	Mr Jason Tan
	Mr Alex Teo
	Mr Edwin Yap
	Mr Yeo Kim Hock

The organisations in which the experts of the Working Group involved are:

Association of Singapore Marine Industries
AY Safety Consultancy and Inspection Services
Building and Construction Authority
Hitachi Elevator Asia Pte Ltd
Jurong Shipyard
Ministry of Manpower
Ngee Ann Polytechnic
Sembawang Shipyard Pte Ltd
Singapore Contractors Association Limited
Singapore Institution of Safety Officers
Teho Ropes and Supplies Pte Ltd
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Wirescan Consultant Pte Ltd
Workplace Safety and Health Council

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Contents

	Page
National Foreword.....	6
Foreword.....	8
Introduction	9
1 Scope.....	10
2 Normative references	10
3 Terms and definitions.....	11
4 Requirements	11
4.1 Material.....	11
4.2 Rope manufacture.....	12
4.3 Designation and classification	13
4.4 Dimensions	13
4.5 Breaking force	15
5 Verification of requirements and test methods	16
5.1 Materials.....	16
5.2 Rope manufacture.....	16
5.3 Test on rope for diameter.....	16
5.4 Test on rope for breaking force.....	16
6 Information for use	18
6.1 Certificate.....	18
6.2 Packaging and marking.....	19
Annex A (normative) Dimensional and mechanical properties of round wires (before ropemaking).....	20
Annex B (normative) Sampling and acceptance criteria for type testing of ropes produced in series.....	23
Annex C (normative) Tables of minimum breaking forces for more common rope classes, sizes and grades	24
Annex D (normative) Calculation of minimum breaking force for ropes in the Tables of Annex C.....	39
Annex E (informative) Tests on wires taken from the rope.....	40
Annex F (informative) Comparison between metric and imperial rope sizes	42
Annex G (informative) Rope grade equivalents.....	43
Annex ZA (normative) Test on completed wire ropes	44
Annex ZB (normative) Wire rope test certificate	45
Bibliography	47

National Foreword

This Singapore Standard was prepared by the Working Group appointed by the Technical Committee on Safety and Health Involving the Use of Equipment under the direction of the General Engineering and Safety Standards Committee.

The review of SS 297 : 1996 – ‘Specification for steel wire ropes for hoisting’ and CP 35 : 1996 – ‘Code of practice for the selection, care and maintenance of steel wire ropes for hoisting’, resulted in the development of a new Singapore Standard, SS 595, which consists of the following three parts, under the general title ‘Steel wire ropes for hoisting’:

- Part 1 : Specification for steel wire ropes (Modified adoption of ISO 2408 : 2004)
- Part 2 : Specification for the selection of wire ropes (Identical adoption of ISO 4308-1 : 2003)
- Part 3 : Code of practice for the care, inspection and maintenance of steel wire ropes for hoisting (Modified adoption of ISO 4309 : 2010)

SS 595 is intended to replace SS 297 and CP 35.

This part of SS 595 is a modified adoption of ISO 2408 : 2004 – ‘Steel wire ropes for general purposes – Minimum requirements’, published by the International Organization for Standardization.

The modifications are given as follows:

Clause	Modifications
5.3	<i>Add</i> “Refer to Annex ZA – Test on completed wire ropes.”
6.1.1	<i>Add</i> “Refer to Annex ZB – Wire rope test certificate.”
	Explanation: To suit local requirements and the needs of the industry.

Annex ZA provides methods of tests to be conducted on completed wire ropes. Annex ZB contains a sample of a typical certificate of conformance for wire ropes after testing. This certificate is a sample meant for laboratories or testing agencies.

Attention is drawn to the following:

1. Where the words ‘this International Standard’ appear, they should be interpreted as ‘this part of SS 595’.
2. The comma has been used throughout as a decimal marker in ISO 2408, whereas in Singapore Standards it is a practice to use a full-point on the baseline as the decimal marker.

In preparing this standard, reference was also made to the following publication:

1. EN 12385-1 : 2002 Steel wire ropes. Safety. General requirements.

Acknowledgement is made for the use of information from the above publications.

Attention is drawn to the possibility that some of the elements of this Singapore Standard may be the subject of patent rights. Enterprise Singapore shall not be held responsible for identifying any or all of such patent rights.

NOTE

1. *Singapore Standards (SSs) and Technical References (TRs) are reviewed periodically to keep abreast of technical changes, technological developments and industry practices. The changes are documented through the issue of either amendments or revisions.*
2. *An SS or TR is voluntary in nature except when it is made mandatory by a regulatory authority. It can also be cited in contracts making its application a business necessity. Users are advised to assess and determine whether the SS or TR is suitable for their intended use or purpose. If required, they should refer to the relevant professionals or experts for advice on the use of the document. Enterprise Singapore shall not be liable for any damages whether directly or indirectly suffered by anyone or any organisation as a result of the use of any SS or TR.*
3. *Compliance with a SS or TR does not exempt users from any legal obligations.*

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 2408 was prepared by Technical Committee ISO/TC 105, *Steel wire ropes*.

This third edition cancels and replaces the second edition (ISO 2408:1985), which has been technically revised.

Introduction

This International Standard was developed in response to a worldwide demand for a specification giving minimum requirements for ropes for general purposes.

As in previous editions, this edition of ISO 2408 specifies metric sizes and grades of rope for the more common classes of rope. In addition, and for comparison, information is given in this edition on imperial rope sizes and grades in order to assist in the rope selection process and help to ensure that existing levels of safety are maintained on equipment originally designed to use such ropes. In these cases, it is recommended that the equipment designer or rope manufacturer (or other competent person) be consulted prior to ordering a substitute rope.

This International Standard does not restrict itself to those classes covered by the tables: other types, such as ropes with compacted strands and compacted (swaged) ropes, may also conform to it.

Complementing this International Standard is ISO 17893, which covers definitions, designation and classification.

Steel wire ropes for hoisting – Part 1 : Specification for steel wire ropes

1 Scope

This International Standard specifies minimum requirements for the manufacture and testing of stranded steel wire ropes for general purposes, including lifting equipment such as cranes and hoists. Ropes for slings are also dealt with, and tables giving minimum breaking forces for the more common sizes, grades and constructions of stranded rope presented. It is applicable to single-layer, rotation-resistant and parallel-closed ropes made from wires of uncoated (bright), zinc-coated and zinc-alloy coated finish in rope diameters of up to 60 mm, supplied as bulk manufacture. It is not applicable to ropes for

- mining purposes,
- aircraft control,
- the petroleum and natural gas industries,
- aerial ropeways and funiculars,
- lifts, or
- fishing purposes.

2 Normative references

The following referenced documents are indispensable for the application 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 2232:1990, *Round drawn wire for general purpose non-alloy steel wire ropes and for large diameter steel wire ropes — Specifications*

ISO 3108, *Steel wire ropes for general purposes — Determination of actual breaking load*

ISO 4345, *Steel wire ropes — Fibre main cores — Specification*

ISO 4346, *Steel wire ropes for general purposes — Lubricants — Basic requirements*

ISO 6892, *Metallic materials — Tensile testing at ambient temperature*

ISO 7800, *Metallic materials — Wire — Simple torsion test*

ISO 10425:2003, *Steel wire ropes for the petroleum and natural gas industries — Minimum requirements and terms of acceptance*

ISO 17893¹⁾, *Steel wire ropes — Vocabulary, designations and classifications*

1) To be published.