ICS 77.140.65
CCS H49

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB 8903-2024

Replacing GB 8903-2018

Steel wire ropes for lifts

电梯用钢丝绳

Issued on: June 25, 2024 **Implemented on: September 25, 2024**

Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC

Table of Contents

Foreword

1 Scope

2 Normative references

3 Terms and definitions

4 Classification and designation

5 Ordering information

6 Technical requirements

7 Verification requirements and test methods

8 Sampling and acceptance rules

9 Operating instructions and markings

Annex A (Normative) Table of minimum breaking force values of steel wire ropes for ordinary classes, diameters and tensile strength classes

Annex B (Normative) Calculation of minimum breaking force of steel wire ropes

Annex C (Informative) Reference weight per unit length, nominal metal cross-sectional area of steel wire ropes and approximate diameter of outer wire

Annex D (Normative) Method for determination of elongation of steel wire ropes

Annex E (Informative) Information on selection, storage, transportation, installation and maintenance of steel wire ropes for lifts

Annex F (Informative) Replacement and scrap conditions of steel wire ropes for lifts

Foreword

This document was issued on 25 June 2024 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 25 September 2024.

It is a GB standard without the /T suffix: compliance is mandatory in China.

The document runs to 33 pages in translation. The identification, the dates, the table of contents and the clauses reproduced on this page are taken from the standard itself.

It replaces GB 8903-2018, which is superseded.

1 Scope

GB 8903-2024 is the Chinese mandatory standard for lift ropes. A lift rope is the component whose failure is unthinkable and whose replacement interval is decided by inspection rather

than by a fixed life, which is why it is standardised separately from general purpose wire rope: the rope runs continuously over sheaves at a small bend radius, it is loaded by the traction that drives the car, and it has to hold a factor of safety that is set by regulation rather than by engineering judgement. The standard sets the constructions and the designation, the requirements on the wire and its grade and coating and on the core, the dimensions and tolerances, the minimum breaking force by construction and diameter, the requirements on the lay, the preforming and the surface condition, the lubrication, the fatigue and traction related properties, the test methods, the inspection rules and the marking, packaging and the certificate that accompanies each length. China installs and maintains more lifts than the rest of the world combined. The 2024 edition replaces GB 8903-2018. For a rope maker, a lift manufacturer or a maintenance company, this is the acceptance text.

This document specifies the classification and designation, ordering information, technical requirements, verification requirements and test methods, sampling and acceptance rules, as well as operating instructions and markings of steel wire ropes, with different structures with nominal diameters from 6 mm to 38 mm, for carbon steel smooth or coated lifts.

This document is applicable to the suspended steel wire ropes for traction drive, hydraulic drive and forced drive lifts, and also applicable to the compensation steel wire ropes and governor steel wire ropes for passenger lifts, cargo lifts and utility lifts running between guide rails.

2 Normative references

The following documents contain requirements which, through reference in this text, constitute provisions 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.

GB/T 228.1 Metallic materials - Tensile testing - Part 1: Method of test at room temperature

GB/T 238 Metallic materials - Wire - Reverse bend test

GB/T 1839 Test method for gravimetric determination of the mass per unit area of galvanized coatings on steel products

GB/T 2104 Steel wire ropes - Packing, marking and certificate - General requirements

GB/T 8358 Steel wire ropes - Determination of breaking force

GB/T 8706 Steel wire ropes - Vocabulary, designation and classification

GB/T 15030 Sisal main cores in steel wire ropes

GB/T 21965 Steel wire ropes - Vocabulary for acceptance and defect

NB/SH/T 0387 Wire rope greases

YB/T 081 Rule for rounding off of numberical values and judgement of testing values for technical standards of metallurgy

YB/T 4182 Steel wire ropes - Determination of lubricant content

YB/T 4452-2015 Fibre cores for steel wire ropes

YB/T 5198 Steel wire for lift ropes

YB/T 5343 Steel wire for ropes

3 Terms and definitions

For the purposes of this document, the terms and definitions given in GB/T 8706 and the following apply.

3.1

single tensile rope

steel wire rope with outer wire and inner wire of the outer strand have the same tensile strength class (except for center wire and filled wire)

3.2

dual tensile rope

steel wire rope with outer wire and inner wire of the outer strand have different tensile strength class (except for center wire and filled wire)

Example: Class 1370/1770, whose outer strand has an outer steel wire tensile strength class of 1370 and the inner steel wire tensile strength class of 1770.

3.3

steel-based composite core (SCC)

a rope core made of steel wire combined with fiber or polymer

3.4

composite steel core (CSC)

a type of steel composite core, a rope core composed of a wire strand and a fiber or polymer core

4 Classification and designation

The classification and designation of steel wire ropes shall meet the requirements of GB/T 8706.