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NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA

ICS 77.140.60

H 49

GB/T 8919-1996

Eqv ISO 2232:1990, ISO 6984:1990

Replacing GB 1178-74, GB 8919-88

Wire for steel wire ropes use

制绳用钢丝

(eqv ISO 2232:1990, ISO 6984:1990)

[Obsolete and replaced by YB/T 5343]

Issued on: April 05, 1996

Implemented on: October 01, 1996

Issued by: General Administration of Quality Supervision, Inspection and Quarantine of the PRC

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Foreword

This Standard complies with the national standard "Steel wire ropes" and replaces GB 8919-88 "Quality wire for steel wire ropes use" and GB 1178-74 "Steel wires for ropes". In terms of technical content, it is equivalent to the international standards ISO 2232:1990 "Round drawn wire for general purpose non-alloy steel wire ropes and for large diameter steel wire ropes - Specifications" and ISO 6984:1990 "Round non-alloy steel wires for stranded wire ropes for mine hoisting - Specifications". The contents of these two international standards are incorporated into this Standard, which provide for wire for steel wire ropes for general and important purposes.

This Standard is an amendment to the GB 8919-88 standard. It retains content which has been proven to be suitable for national conditions in China's long-term practice. This Standard has been changed in the following clauses:

- 1 (Scope);
- 3 (Classification);
- 4 (Dimensions, shape, and tolerances);
- 5 (Technical requirements);
- 7.2 (Reinspection).

This Standard was first issued in February 1988.

This Standard was proposed by Ministry of Metallurgical Industry of the PRC.

This Standard shall be under the jurisdiction of China Metallurgical Information and Standardization Institute.

Drafting organizations of this Standard: Anshan Iron and Steel Group Corporation, China Metallurgical Information and Standardization Institute, Tianjin No.2 Steel Wire Rope Factory.

Main drafters of this Standard: Liu Xuyuan, Feng Wenhua, Wang Ping.

Wire for steel wire ropes use

1 Scope

This Standard specifies the classification, dimensions, shape and tolerances, technical requirements, test methods, inspection rules, packing, marking, and quality certification of wire for steel wire ropes use.

This Standard applies to the smoothly-surfaced and zinc-coated wire with a round cross section for the manufacture of steel wire ropes for general and important purposes.

2 Reference standards

The following standards contain provisions which, through reference in this Standard, constitute provisions of this Standard. At the time of publication of this Standard, the editions shown are valid. All standards will be revised. Parties using this Standard shall explore the possibility of using the latest editions of the following standards.

GB 228-87 Metallic materials - Tensile testing

GB 238-84 Metallic materials - Wire - Reverse bend test

GB 239-84 Metallic materials - Wire - Torsion test

GB 2103-88 General provisions for checking, packing, marking and quality certification of steel wire

GB/T 2973-91 Zinc-coated steel wire - Test method for weight of zinc coating

GB 2976-88 Metallic materials - Wire - Wrapping test

GB/T 4354-1994 Hot-rolled quality carbon steel wire rods

3 Classification

3.1 For classification according to surface state, nominal diameter, and nominal tensile strength, see Table 1.

Table 1 -- Classification

Surface state of wire	Nominal diameter d, mm	Nominal tensile strength, MPa				
Smoothly-surfaced and class B zinc-coated wire	$3.60 < d \leq 4.40$	1470 1570 1670				
	$3.00 < d \leq 3.60$	1470 1570		1670 1770		
	$0.20 \leq d \leq 3.00$	1470	1570	1670	1770	1870 1960
Class AB zinc-coated wire	$3.60 < d \leq 4.40$	1470 1570 1670				
	$0.20 \leq d \leq 3.60$	1470	1570	1670	1770	
Class A zinc-coated wire	$3.60 < d \leq 4.40$	1370 1470 1570				
	$3.00 < d \leq 3.60$	1370	1470	1570	1670	
	$0.20 \leq d \leq 3.00$	1370	1470	1570	1670	1770

3.2 For nominal diameter tolerance, as for the wires with a diameter of not more than 0.40 mm, the nominal diameter tolerance is 0.02 mm. Wires with a diameter greater than 0.40 mm and up to 2.00 mm have a nominal diameter tolerance of 0.05 mm. Wires with a diameter greater than 2.00 mm have a nominal diameter tolerance of 0.10 mm. In special cases, wires with intermediate nominal diameter are allowed.

3.3 According to different purposes, it is classified into wire for steel wire ropes for general purpose and for important purpose.

4 Dimensions, shape, and tolerances

4.1 Diameter

4.1.1 Nominal diameter

The nominal diameter of the wire shall comply with the provisions of 3.1 and 3.2. When the wire is accepted, the determination of each inspection result shall be based on the nominal diameter.

4.1.2 Measured diameter and its tolerance

The measured diameter of the wire refers to the arithmetic mean of the diameters obtained from two measurements in the directions perpendicular to each other of the same cross section. Its tolerance shall meet the requirements of Table 2.

Table 7 -- Mandrel diameter

Class of zinc-coated wire	Mandrel to wire diameter ratio	
	Nominal diameter of wire	
	$d < 1.5 \text{ mm}$	$d \geq 1.5 \text{ mm}$
A, AB	4	6
B	2	3

5.7 Surface quality

The surface of the wire shall be smooth, bright, and clean without defects such as cracks, knobs, burrs, scars and rust which are harmful to the use. The zinc coating of the zinc-coated wire shall be continuous and uniform.

6 Test methods

The inspection items, test methods, sampling quantity and methods of wires shall meet the requirements in Table 8.

Table 8 -- Test methods

No.	Inspection items	Test methods	Sampling quantity and methods
1	Tensile test	GB 228	
2	Torsion test	GB 239	Wire coil: both ends of each coil
3	Reverse bend test	GB 238	I-shaped wheel (or reel): one end of each I-shaped wheel (or reel)
4	Knotting tensile test	GB 228	
5	Test for weight of zinc coating	GB/T 2973	TAKE the ends of one of every five wire coils; TAKE one of every ten I-shaped wheels
6	Wrapping test	GB 2976	One end of I-shaped wheel
7	Shape and dimensions	USE a micrometer with a division value of 0.01 mm to measure	Coil-by-coil (wheel-by-wheel) measurement for wire coils (or I-shaped wheels)
8	Surface quality	Naked eye	Coil-by-coil (wheel-by-wheel) check for wire coils (or I-shaped wheels)

7 Inspection rules

7.1 Inspection and acceptance

The inspection and acceptance of wires shall comply with the provisions of GB 2103.

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