

ICS 77.140.65
CCS H 49



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 5953.1-2009

Replacing GB/T 5953.1-2009, GB/T 5953.2-2009, GB/T 5953.3-2012

**Steel wire for cold heading and cold forging-Part 1: Intended for
heat treatment**

冷镦钢丝 第1部分：热处理型冷镦钢丝

(English Translation)

Issued on: May 25, 2026

Implemented on: December 1, 2026

Issued by: State Administration for Market Regulation

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1 Scope

This document specifies the classification and designation, ordering details, technical requirements, test methods, and inspection procedures for cold heading steel wire (hereinafter referred to as "wire").

Rules, packaging, marking, storage and quality certificate.

This document applies to steel wire used in the manufacture of fasteners such as bolts, screws, studs, nuts, and rivets, as well as other cold-formed parts.

4 Classification and Codes

According to the steel wire production process, the delivery condition of cold heading steel wire can be divided into.

Harddrawing (HD)

Spheroidizing annealing (SA) Cold drawing, spheroidizing, annealing, and light drawing - SALD;

Annealing, cold drawing, spheroidizing, annealing, light drawing --- ASALD.

5 Order details

Contracts or orders placed in accordance with this document shall include the following.

- a) This document number;
- b) Product Name;
- c) Steel grade and composition requirements;
- d) Dimensions and shape;
- e) Weight;
- f) Delivery status;
- g) Other special requirements.

6.1 Grade and Chemical Composition

6.1.1

The grade and chemical composition (smelting analysis) of the steel used for steel wire shall conform to the requirements of the relevant standards specified in the contract. The grades specified in this document...

Chemical composition can be referenced from GB/T 6478 or GB/T 28906. The comparison table of grades in this document with other standard grades is shown in Appendix A.

6.1.2

The permissible deviation of the chemical composition of finished steel wire products shall comply with the provisions of GB/T 222.

6.2 Delivery Status

Steel wire is available in four delivery conditions. HD, SA, SALD, and ASALD. The delivery condition should be specified in the contract when ordering.

6.3 Surface Quality

6.3.1

The surface of the steel wire should be smooth and free from cracks, folds, scars, delamination, scratches, hairline cracks, rust, or other defects that could affect cold heading or cold forming.

Defects are permitted, but individual pits and concave surfaces with a depth not exceeding 1/2 of the diameter tolerance and those with a depth not exceeding 1/4 of the diameter tolerance are allowed without affecting the overall quality of the product.

Individual dents and scratches from use.

6.3.2

The requirements for the surface coating of steel wire shall be determined through negotiation between the supplier and the buyer.

6.4.1 Dimensions

6.4.1.1

The nominal diameter of the steel wire is 1.00mm~45.00mm.

6.4.1.2

The permissible deviation of the diameter of steel wire with a nominal diameter not exceeding 20.00 mm shall conform to the specifications of grade 10 in Table 2 of GB/T 342-2017.

For steel wires with a nominal diameter greater than 20.00mm~25.00mm, the permissible deviation in diameter shall conform to grade 11 in Table 9 of GB/T 702-2026.

The regulations stipulate that the allowable deviation of the diameter of steel wire with a nominal diameter greater than 25.00 mm shall be determined through negotiation between the supplier and the buyer.

The permissible dimensional deviations of straight, polished steel wire with a diameter not exceeding 16.00 mm shall conform to the requirements of grade 10 in GB/T 3207-2025;

The dimensional tolerances for straight, polished steel wire with a diameter greater than 16.00mm~25.00mm shall conform to grade 11 of GB/T 3207-2025.

For straight steel wires with a diameter greater than 25.00mm, the precision shall be negotiated between the supplier and the buyer.

6.4.1.3

The out-of-roundness of the steel wire shall not exceed one-half of the diameter tolerance.

6.4.1.4

Steel wire with special precision requirements may be provided upon request from the buyer and as specified in the contract.

6.4.2 Appearance

6.4.2.1

Steel wire is usually delivered in coils, but it can also be delivered in straight strips or polished straight strips.

6.4.2.2

Steel wire shall be delivered in coils, which shall be neat and orderly, and shall not be scattered or shaped like an "infinity"; when the binding straps are untied, there shall be no defects that would affect its use.

distortion.

6.4.2.3

Steel wire shall be delivered in straight strips or polished straight strips, typically in lengths of 2000mm to 6000mm, and its straightness shall not exceed [a certain value].

2mm/m.

6.4.3 Weight

6.4.3.1

Each coil of wire shall consist of a single wire and shall not have any form of splice. The minimum coil weight shall conform to the provisions of Table 1.

6.4.3.2

Upon negotiation between the supplier and the buyer, and as specified in the contract, steel wire with a rated coil weight of 100kg to 2500kg can be supplied; when both parties...

When determining the weight of the pallet, the allowable deviation is $\pm 15\%$.

6.4.3.3

The weight of the straight bar shall be determined through negotiation between the supplier and the buyer.

6.5 Mechanical Properties

6.5.1

Cold heading steel wire produced by HD process shall conform to the specifications in Table 2 for tensile strength and reduction of area. The Rockwell hardness value is for informational purposes only.

refer to.

6.5.2

Cold heading steel wire produced by the SA process shall conform to the specifications in Table 3 for tensile strength and reduction of area. The Rockwell hardness value is for informational purposes only.

refer to.