



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

GB/T 24242.4-2020

**Non-alloy steel wire rod for conversion to wire - Part 4: Specific
requirements for special purpose wire rod**

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Foreword

GB/T 24242 Non-alloy Steel Wire Rod for Conversion to Wire is divided into 4 parts:

---Part 1: General Requirements;

---Part 2: Specific Requirements for General Purpose Wire Rod;

---Part 3: Specific Requirements for Rimmed and Rimmed Substitute Low Carbon Steel Wire Rod;

---Part 4: Specific Requirements for Special Purpose Wire Rod.

This Part is Part 4 of GB/T 24242.

This Part was drafted in accordance with the rules in GB/T 1.1-2009.

This Part serves as a replacement of GB/T 24242.4-2014 Non-alloy Steel Wire Rods for Conversion to Wire - Part 4: Specific Requirements for Wire Rod for Special Applications.

In comparison with GB/T 24242.4-2014, other than editorial modifications, the main technical changes are as follows:

---The requirements for mechanical properties are modified (see 4.3; 4.3 of Version 2014);

---The requirements for decarburized layer are modified (see 4.4; 4.4 of Version 2014);

---The requirements for microstructure are modified (see 4.5; 4.5 of Version 2014);

---The requirements for central segregation are modified (see 4.6; 4.7 of Version 2014);

---The requirements for non-metallic inclusions are modified (see 4.7; 4.6 of Version 2014);

---The requirements for oxide scale are added (see 4.8);

---The requirements for surface quality are modified (see 4.9; 4.9 of Version 2014);

---The requirements for "surface defects" and "mechanical damages" are deleted;

GB/T 24242.1 is integrated (see Appendix B and Appendix C of Version 2014).

Non-alloy Steel Wire Rod for Conversion to Wire - Part

4: Specific Requirements for Special Purpose Wire

Rod

1 Scope

This Part of GB/T 24242 specifies the designation expression methods, dimensions, shapes, weights and allowable deviations, order content, technical requirements, test methods, inspection rules, packaging, marking and quality certificate of special purpose wire rod in non-alloy steel wire rod for conversion to wire.

This Part is applicable to high-quality wire rod for drawn or cold-rolled steel wire with relatively high performance requirements (hereinafter referred to as wire rod).

2 Normative References

The following documents are indispensable to the application of this document. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 222 Permissible Tolerances for Chemical Composition of Steel Products

GB/T 10561 Steel - Determination of Content of Nonmetallic Inclusions - Micrographic Method Using Standards Diagrams (GB/T 10561-2005, ISO 4967:1998, IDT)

GB/T 24242.1-2020 Non-alloy Steel Wire Rod for Conversion to Wire - Part 1: General Requirements (ISO 16120-1:2017, MOD)

3.1 The designation of wire rod steel is usually expressed by the composition,

and the

designation code is CXXD2. It is composed of three parts: the English initials of Carbon and Drawing, the Arabic numerals of the average content of carbon element (in a few ten thousandths) and the code of purpose classification.

Example: C70D2.

In which: 70---the average content of carbon element is 70 parts per 10,000; commonly used microalloying elements, such as: Cr and V, may be added. The content of Cr shall be not greater than 0.3%; the content of V shall be not greater than 0.10%.

4.2.5 Through the negotiation between the demand-side and the supply-side, fine-

grained steel may also be used, which can be achieved by adding one or more of Al, Nb or V. Under this circumstance, through the negotiation between the demand-side and the supply-side, an Al content different from the table may be specified.

4.2.6 Through the negotiation between the demand-side and the supply-side, on the

basis of Table 1, the C content of the designations C32D2 ~ C98D2 may be increased by 0.01% in the upper limit or be decreased by 0.01% in the lower limit.

4.2.7 For wire rod used for galvanizing, if the demand-side requires the lower limit of

Si content to be lower than that in Table 1, it may be indicated during ordering. During ordering, the upper limit of Si content of the designations C3D2 ~ C20D2 may become more rigorous through negotiation.

4.2.8 For the designations C26D2 ~ C98D2, two types - A and B may be added during

ordering. Type-A steel: Mn 0.30% ~ 0.60%; Type-B steel: Mn 0.60% ~ 0.90%.

4.2.9 For steel with unintentionally added Cr element, the sum of chromium, nickel and

copper content shall satisfy $Cr + Ni + Cu \leq 0.30\%$.

4.2.10 The sum of copper and tin content shall satisfy $Cu + Sn \leq 0.15\%$. In accordance

with the demand-side's demands, through the negotiation between the demand-side and the supply-side, for wire rod with high performance requirements (for example, wire rod for dynamically loaded spring steel wire), $Cu \leq 0.12\%$, $Sn \leq 0.03\%$.

4.2.11 Through the agreement between the demand-side and the supply-side, Al content may be $0.02\% \sim 0.60\%$ (under this circumstance, the limit of N content shall also be agreed during ordering); Si content may be not greater than 0.10% (if requested).

4.2.12 Through the agreement between the demand-side and the supply-side, and statement in the contract, wire rods of other designations and chemical compositions may also be provided.

4.2.13 Please refer to Appendix D for a comparison of designations among this Part,

and relevant domestic and foreign standard.

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