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

GB/T 33954-2017

**Hot-rolled wire rod for quenched and tempered spring steel
wire**

淬火-回火弹簧钢丝用热轧盘条

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1 Scope

China's national standard for the hot-rolled wire rod from which quenched and tempered spring steel wire is drawn. It specifies the order content, the dimensions, shape, weight and permitted deviations, the technical requirements, the test methods, the inspection rules and the packaging, marking and quality certificate. Quenched and tempered spring wire is the wire used for valve springs, suspension springs and clutch springs - components that are cycled tens of millions of times and must not break, because a broken valve spring destroys an engine and a broken suspension spring can put a car off the road. The wire is drawn from this rod and then hardened and tempered in a continuous furnace, and its fatigue life is set as much by what the rod brought with it as by the heat treatment. Surface defects, decarburisation and non-metallic inclusions are the three things that end a spring's life, and all three originate in the steelmaking and rolling that this standard governs.

This Standard specifies the order content, size, shape, weight and allowable deviation, technical requirements, test methods, inspection rules, packaging, marks, and quality certificate of hot-rolled wire rod for quenched and tempered spring steel wires. This Standard is applicable to the hot-rolled wire rod for quenched and tempered spring steel wires (hereinafter referred to as the wire rod).

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.

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

GB/T 223.5, Methods for chemical analysis of iron, steel and alloy - The reduced

molybdosilicate spectrophotometric method for the determination of acid-soluble silicon content

GB/T 223.11, Iron, Steel and Alloy - Determination of Chromium Content - Visual Titration or Potentiometric Titration Method

GB/T 223.14, Methods for Chemical Analysis of Iron, Steel and Alloy - The N-Benzoyl-N-Phenylhydroxylamine Extraction Photometric Method for the Determination of Vanadium Content

GB/T 223.19, Methods for chemical analysis of iron, steel and alloy - The neocuproine-chloroform extraction photometric method for the determination of copper content

GB/T 223.54, Methods for chemical analysis of iron, steel and alloy - The flame atomic absorption spectrophotometric method for the determination of nickel content

GB/T 223.60, Methods for chemical analysis of iron, steel and alloy - The perchloric acid dehydration gravimetric method for the determination of silicon content

GB/T 223.62, Methods for chemical analysis of iron, steel and alloy - The butyl acetate extraction photometric method for the determination of phosphorus content

GB/T 223.63, Methods for chemical analysis of iron, steel and alloy - The sodium (potassium) periodate photometric method for the determination of manganese content

GB/T 223.64, Iron, Steel and Alloy - Determination of Manganese Content - Flame Atomic Absorption Spectrometric Method

GB/T 223.72, Iron, Steel and Alloy - Determination of Sulfur Content - Gravimetric Method

GB/T 224, Determination of depth of decarburization of steel

GB/T 226, Classification and codes of basic personal information

7 Inspection rules

7.1 Inspection and acceptance The inspection and acceptance of the wire rod shall be performed by the quality and technical supervision department of the supplier. When necessary, the purchaser has the right to conduct inspection and acceptance in accordance with the provisions of this Standard.

7.2 Batching rules The wire rod shall be accepted in batches. Each batch shall consist of the wire rod of the same furnace number, the same designation, the same specification.

7.3 Re-inspection The re-inspection and determination rules of the wire rod shall be performed according to GB/T 2101.

7.4 Numerical rounding The inspection and inspection data of the wire rod shall be rounded

off by comparison method of rounding off values. The rounding off rules shall be in accordance with GB/T 8170.

8 Packaging, marks, and quality certificate

8.1 The packaging, marks, and quality certificate of the wire rod shall comply with GB/T 2101.

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