



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

GB/T 1222-2025

Replacing GB/T 1222-2016, GB/T 33164.1-2016, GB/T 33164.2-2016

Spring Steels

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Foreword

This Document was drafted as per the rules specified in GB/T 1.1-2020 Directives for Standardization – Part 1: Rules for the Structure and Drafting of Standardizing Documents.

This Document replaced GB/T 1222-2016 Spring Steels, GB/T 33164.1-2016 Spring Steels for Automotive Suspension System - Part 1: Hot Rolled Spring Steel Flat Bars, and GB/T 33164.2- 2016 Spring Steels for Automotive Suspension System - Part 2: Hot Rolled Round Steel Bar and Wire Rod. This Documents is mainly based on GB/T 1222-2016, integrating the contents of GB/T 33164.1-2016, and GB/T 33164.2-2016. Compared with GB/T 1222-2016, the major technical changes of this Document are as follows besides the structural adjustments and editorial modifications:

- a) Change the scope of application of the standard (see Clause 1 of this Edition; Clause 1 of b)
- b) Change the ordering contents (see Clause 4 of this Edition; Clause 4 of the 2016 Edition);
- c) Change the requirements for copper content and silicon content in 60Si2Mn (see 6.1.1 of this Edition);
- d) Add grouping by phosphorus and sulfur contents (see 6.1.2 of this Edition);
- e) Change the oxygen content requirements in alloy spring steel (or billets) (see 6.1.3 of this Edition);
- f) Delete the 40SiMnVBE designation and its related requirements (see Clause 6 of the 2016 Edition);
- g) Change the mechanical property requirements for 60Si2Mn (see 6.3 of this Edition; 6.4 of the 2016 Edition);
- h) Add hardenability requirements for 60CrMnB (see 6.4 of this Edition);
- i) Change the requirements for low magnification (see 6.5 of this Edition; 6.6 of the 2016 Edition);
- j) Change the requirements for non-metallic inclusions (see 6.6 of this Edition; 6.7 of the 2016 Edition);
- k) Change the requirements for decarburized layers (see 6.7 of this Edition; 6.8 of the 2016 Edition);
- l) Add grain size requirements (see 6.8 of this Edition);
- m) Change the surface quality requirements (see 6.9 of this Edition; 6.9 of the 2016 Edition);

Please note some contents of this Document may involve patents. The issuing agency of this Document shall not assume the responsibility to identify these patents.

This Document was proposed by China Iron and Steel Association.

This Document shall be under the jurisdiction of National Technical Committee on Steels of Standardization Administration of China (SAC/TC 183).

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The historical editions replaced by this Document are as follows:

--- GB/T 1222 was first-time published in 1975; first-time revised in 1984; second-time revised in 2007; and third-time revised in 2016;

--- It is fourth-time revised hereby, integrating the contents of GB/T 33164.1-2016 Spring Steels for Automotive Suspension System - Part 1: Hot Rolled Spring Steel Flat Bars, and GB/T 33164.2-2016 Spring Steels for Automotive Suspension System - Part 2: Hot Rolled Round Steel Bar and Wire Rod.

1 Scope

This Document specifies the ordering contents, manufacturing processes, technical requirements, test methods, inspection rules, packaging, marking, and quality certificate for spring steels.

This Document applies to round and square spring steel bars with a nominal diameter or side length no more than 180 mm; flat spring steel bars with a nominal width no more than 180 mm and a nominal thickness no more than 70 mm; and spring steel wire rods with a nominal diameter no more than 40 mm (hereinafter collectively referred to as steels). The designations and chemical compositions of steel ingots, billets, and their products shall be followed accordingly.

2 Normative References

The provisions in following documents become the essential provisions of this Document through reference in this Document. For the dated documents, only the versions with the dates indicated are applicable to this Document; for the undated documents, only the latest

version (including all the amendments) is applicable to this Document.

GB/T 5216-2014 Structural steel with specified hardenability bands GB/T 6394
Determination of estimating the average grain size of metal GB/T 7736 Ultrasonic
inspecting method for macro-structure and imperfection of steel GB/T 8170-2008 Rules of
rounding off for numerical values & expression and judgement of limiting values GB/T
10561-2023 Determination of content of nonmetallic inclusions in steel - Micrographic
method using standard diagrams GB/T 11261 Steel and iron - Determination of oxygen
content - The pulse heating inert gas fusion-infra-red absorption method GB/T 13298
Inspection methods of microstructure for metals GB/T 13299 Determination of free
cementite, pearlite and Widmanstatten structure in steel GB/T 14981-2009
Dimension□ shape□ mass and tolerance for hot-rolled round wire rod GB/T 17505 Steel and
steel products - General technical delivery requirements GB/T 20066 Steel and iron -
Sampling and preparation of samples for the determination of chemical composition GB/T
20123 Steel and iron - Determination of total carbon and sulfur content - Infrared absorption
method after combustion in an induction furnace (routine method) GB/T 37566 Method of
ultrasonic testing for round steel YB/T 4413 Metallographic determination of core
segregation in high carbon steel wire rod

3 Terms and Definitions

3.1 Spring steels

Steels that possess elastic properties and used for manufacturing springs or elastic elements.

specified range, its ability to undergo elastic deformation allows it to withstand a certain load without permanent deformation after the load is removed.

4 Ordering Contents

Contracts or orders placed in accordance with this Document should include the following information:

- c) Designation or Uniform Numerical Code;
- g) Mechanical properties (tempering temperature of 60Si2Mn);
- k) Decarburized layer (grouping of hot-rolled materials);
- l) Application (e.g., for automotive suspension systems);

5 Manufacturing Process

5.1 Smelting method