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

GB 8601-1988

**Forged and rolled solid wheels for railway
(English Translation)**

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules of Standardization Documents" Drafting.

This document replaces GB/T 8601-1988 "Rolled Steel Integral Wheels for Railways". This document is compared with GB/T 8601-1988, except for the structure in addition to sexual adjustments and editorial changes, the main technical changes are as follows.

a) Added the 1, 2, and 3 wheel levels classified by axle load and speed, and cancelled the classification regulations for A and B wheels (see Section 4).

Chapter, Chapter 3 of the 1988 edition);

b) The regulations on wheel size specifications have been deleted (see 4.1 in the 1988 edition);

c) Four wheel steel grades, CL50, CL55, CL65, and CL70, have been added, and CL45MnSiV wheel steel grades have been deleted (see 6.1, 5.1 of the 1988 edition);

d) Added requirements for wheel web tensile performance, -20°C rim impact toughness, rim surface hardness, and heat treatment uniformity requirements, deleted -60°C web toughness, drop weight test, etc. (see 6.3, 5.4.2 of the 1988 edition);

e) The level requirements for non-metallic inclusions have been changed (see 6.5, 5.7 in the 1988 edition);

f) The requirements for low-power organization have been changed (see 6.6, 5.6 of the 1988 edition);

g) The requirements for ultrasonic flaw detection have been changed (see 6.7, 5.8 in the 1988 edition);

h) Changed shot peening requirements (see 6.10, 5.11 of the 1988 edition);

i) Added wheel type test requirements (see 7.4);

j) Added the detection content of liquid hydrogen content in wheel steel (see Appendix A);

- k) Added fatigue performance requirements and test content (see Appendix B);
- l) Added the strain gauge method to determine the change of the circumferential residual stress deep under the tread (destructive test method) (see Appendix C);
- m) Added the content of unbalance removal method (see Appendix D).

1 Scope

This document specifies the classification, type and size limit deviations, shape and position tolerances, technical requirements, test inspection methods, inspection requirements, markings, delivery and quality certificates, etc.

This document is applicable to rolled steel integral wheels for railway locomotives with a maximum operating speed of not more than 250km/h and an axle load of not more than 33t.

2 Normative references

The content of the following documents constitutes an indispensable clause of this document through normative references in the text. Among them, dated quotations Only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to this document.

GB/T 222 The allowable deviation of the chemical composition of the finished steel GB/T 223.3 Methods for chemical analysis of iron, steel and alloy. The diantipyrine methane phosphomolybdic acid gravimetric method for the determination of phosphorus content GB/T 223.4 Determination of Manganese Content in Iron, Steel and Alloy by Potentiometric Titration or Visual Titration GB/T 223.5 Iron and steel-Determination of acid-soluble silicon and total silicon content-Reduced molybdosilicate spectrophotometric method GB/T 223.11 Determination of chromium content in iron, steel and alloy by visual titration or potentiometric titration GB/T 223.12 Methods for chemical analysis of iron, steel and alloy. The sodium carbonate separation-diphenylcarbazide photometric method for the determination of chromium content GB/T 223.13 Methods for chemical analysis of iron, steel and alloys. The ferrous ammonium sulfate titration method for the determination of vanadium content GB/T 223.14 Methods for chemical analysis of iron, steel and alloy-The tantalum reagent extraction spectrophotometric method for the determination of vanadium content GB/T 223.18 Methods for chemical analysis of iron, steel and alloy. The sodium thiosulfate separation-iodometric method for the determination of copper content GB/T 223.19 Methods for Chemical Analysis of Iron, Steel and Alloy, The Neocuproine Trichloromethane Extraction Spectrophotometric Method for the Determination of Copper Content GB/T 223.23 Iron, steel and alloy-Determination of nickel content-Dimethylglyoxime spectrophotometric method GB/T 223.26 Steel and alloy determination of molybdenum content-Thiocyanate spectrophotometric method GB/T 223.28 Methods for chemical

analysis of iron, steel and alloy-The alpha-benzoin oxime gravimetric method for the determination of molybdenum content GB/T 223.53 Methods for chemical analysis of iron, steel and alloy-The flame atomic absorption spectrophotometric 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 223.58 Methods for chemical analysis of iron, steel and alloy. The sodium arsenite-sodium nitrite titration method for the determination of manganese content GB/T 223.59 Steel and alloy determination of phosphorus content-Bismuth phosphomolybdenum blue spectrophotometric method and antimony phosphomolybdenum blue spectrophotometric method 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 223.61 Methods for chemical analysis of iron, steel and alloy-The ammonium phosphomolybdate volumetric method for the determination of phosphorus content GB/T 223.62 Methods for Chemical Analysis of Iron, Steel and Alloy-The Butyl Acetate Extraction Spectrophotometric 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 Determination of manganese content in steel and alloy by flame atomic absorption spectrometry GB/T 223.67 Steel and alloy determination of sulfur content-Methylene blue spectrophotometric method GB/T 223.68 Methods for chemical analysis of iron, steel and alloy, the determination of sulfur content by potassium iodate titration after combustion in a tube furnace GB/T 223.69 Steel and alloy carbon content determination after combustion in tube furnace gas volume method GB/T 223.71 Methods for chemical analysis of iron, steel and alloy, the determination of carbon content by gravimetric method after combustion in a tube furnace