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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 25770-2024

Rolling bearings - Bearings for railway wagon

滚动轴承 铁路货车轴承

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Table of Contents

1 Scope

GB/T 25770-2024 is the Chinese standard for railway wagon axlebox bearings. It governs a component with an unusual failure consequence: a wagon bearing that overheats and seizes causes a burnt journal and, in the worst case, a derailment, which is why railways worldwide monitor them continuously with trackside detectors and why the standard is written around the interference fit, the sealing and the grease as much as around the raceways. It sets the symbols, the coding method, the structural types and the boundary dimensions so that bearings are interchangeable across the wagon fleet, then the technical requirements: the materials and heat treatment, the dimensional and running accuracy, the internal clearance, the cage, the seals and the grease with its fill and its properties, the surface and subsurface quality, the life and the dynamic capacity, and the requirements on the sealed and pre-adjusted assembly as supplied. It then gives the test methods, the inspection rules and the marking, packaging, transport and storage. It takes effect on 1 April 2025.

This document specifies the coding method, structural type, overall dimensions, technical

requirements, test methods, inspection rules, marks, rust-proof packaging and storage of rolling bearings for railway wagon. This document applies to the manufacture of rolling bearings for railway wagon used at speeds not exceeding 160 km/h.

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 272, Rolling bearings -- Identification code

GB/T 307.2-2005, Rolling bearings -- Measuring and gauging principles and methods

GB/T 699-2015, Quality carbon structure steels

GB 1922-2006, Petroleum solvents for paints and cleaning

GB/T 2828.1-2012, Sampling procedures for inspection by attributes -- Part 1. Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection

GB/T 2829-2002, Sampling procedures and tables for periodic inspection by attributes (apply to inspection of process stability)

GB/T 3203-2016, Carburizing steels for bearing

GB/T 4199, Rolling bearings -- Tolerances -- Definitions

GB/T 5213-2019, Cold rolled low carbon steel sheet and strip

GB/T 6930, Rolling bearings -- Vocabulary

GB/T 7811, Rolling bearings -- Symbols for physical quantities

GB/T 8597-2013, Rolling bearings -- Rust proof packaging A steel plate stamping sealing part fixed on the outer ring of the bearing, combined with the oil seal and the seal seat to form a space for storing grease. NOTE. It is used to prevent grease leakage or foreign matter intrusion, suitable for 352226X2-2RZ bearings.

3.2 seal wear ring Located on the outside of the end face of the inner ring of the bearing, it is a ring-shaped part fixed on the axle and combined with the oil seal and sealing cover to form a space for storing grease. NOTE. It is used to prevent grease leakage or foreign objects from entering.

4 Symbols

The symbols given in GB/T 7811 apply to this document.

5 Coding method

5.1 The coding method for rolling bearings for railway wagon (hereinafter referred to as "bearings") shall comply with the provisions of GB/T 272.The bearing post-code may also be abbreviated, using one English letter to represent the meaning of multiple post-codes, such as "A" and "B" to represent changes in structural type.

5.2 Non-standard bearing codes are determined by the manufacturer. Example. X197726 bearing. Where. X - manufacturer code; 19 - structure code; 7 - type code; 7 - diameter series code; 26 - inner diameter code, d = 130 mm.

8.11 Appearance quality

8.11.1 The working and matching surfaces of rollers and rings before phosphating shall not have burns, soft spots or decarburization. They shall also not have defects such as burrs, scratches, stains, dents, rust, bumps, etc.

8.11.2 The connection between the bearing inner ring and seal seat assembly chamfer and the inner cylindrical surface shall be smooth and without sharp edges.

8.11.3 The appearance quality of the cage shall comply with the requirements of TB/T 3567-2021.

8.11.4 The appearance quality of the oil seal shall comply with the requirements of TB/T 3419-2015.

8.12 Others

8.12.1 The seal cover, seal seat, oil seal and seal assembly of the bearing shall be pressed with a special mold. After pressing, the bearing shall be intact and undamaged and meet the requirements of the product drawing.

8.12.2 If the user has other technical requirements for bearings, they can negotiate with the manufacturer to determine them.

9 Test methods

9.1 Inspection of materials and heat treatment The chemical composition, non-metallic inclusions, mechanical properties and other requirements of the carburized bearing steel used to manufacture the rings shall be inspected in accordance with the provisions of GB/T 3203-2016.The quality requirements after heat treatment shall be inspected in accordance with the provisions of JB/T 8881-2020. The chemical composition, non-metallic inclusions and other requirements of high carbon chromium bearing steel used to manufacture rollers shall be inspected in accordance with the provisions of GB/T 18254-2016.The quality requirements after heat treatment shall be inspected in accordance with the provisions of

GB/T 34891- 2017.

9.2 Tolerance measurement The measurement of bearing size tolerance and rotation accuracy shall comply with the provisions of GB/T 307.2-2005.

10.2 Type inspection

10.2.1 Bearings shall be subject to type inspection in any of the following situations.

a) When a new product is finalized;

b) When there are major changes in design, materials, processes, etc. that may affect product quality and performance;

c) When a product is discontinued for more than one year and production is resumed.

10.2.2 Type inspection items and sampling numbers shall be in accordance with the provisions of Table 12.

10.2.3 The products for type inspection shall be selected from the same batch of products that have passed the factory inspection. The exit-factory inspection items shall be re-inspected first, and the bench test shall be carried out after the re-inspection is passed. In the bench test assessment, each batch of tests shall be carried out in accordance with the provisions of GB/T 2829-2002.A sampling plan shall be selected. The sample size shall be in accordance with the provisions of Table

12.The qualified judgment number is

0.The unqualified judgment number is 1.

11 Marks

11.1 Mark the following at intervals on the circumference of the groove on the outer surface of the bearing outer ring. bearing model, trademark (or manufacturer code), year and month of production (the first two digits are the year, the last two digits are the month), and production sequence number (arranged in six Arabic numerals). The manufacturer may also add internal information or necessary external information. Example. The marks on the groove on the outer surface of the outer ring are shown in Figure 4.

11.2 Marks shall be evenly distributed on the back of the inner ring. bearing model, trademark (or manufacturer code), production year and month (the first two digits are the year, the last two digits are the month), material batch number (arranged in three- digit Arabic numerals). Example. The marks on the back of the inner ring are shown in Figure 5.

11.3 To increase the traceability of bearings, it is advisable to use the DMC two-dimensional code mark. The marking requirements are determined by the user and the manufacturer.