

ICS 21.100.20

CCS J11



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

GB/T 25764-2024

Replacing GB/T 25764-2010

Rolling bearings - Roller bearings for automotive transmissions

滚动轴承 汽车变速箱用滚子轴承

Issued on: September 29, 2024

Implemented on: January 1, 2025

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

Table of Contents

1 Scope	
2 Normative references	
3 Terms and definitions...	
4 Symbols...	
5 Classification...	
6 Identification code...	
6.1 Code composition...	
6.2 Type code and size series code...	
6.3 Prefix code and postfix code...	
6.4 Code examples...	
7 Structural type and dimensions...	
7.1 Cylindrical roller bearings...	
7.2 Tapered roller bearings...	
8 Technical requirements...	
8.1 Materials and heat treatment...	
8.2 Tolerance	
8.2.1 Bearing tolerance	
8.3 Chamfer...	
8.4 Rolling surface shape...	
8.5 Surface roughness...	
8.6 Clearance...	
8.7 Residual magnetism...	
8.8 Cleanliness...	
8.9 Vibration...	
8.10 Friction torque...	
8.11 Rotational flexibility...	
8.12 Appearance quality...	
8.13 Life	
8.14 Others	
9 Testing methods	
9.2 Inspection of roller sag	
9.6 Measurement of clearance	

9.6.2 Axial clearance

9.13 Life test

10 Inspection rules

1 Scope

GB/T 25764-2024 is the Chinese standard for the roller bearings used in automotive transmissions. A gearbox bearing works in conditions no catalogue bearing is designed for: it runs in gear oil full of wear debris, it takes shock loads from gear changes, it operates at high speed and at temperatures that swing widely, and it must last the life of the vehicle in a housing that gives it very little room. This standard is the dimension and quality specification for those bearings. It sets the types and the boundary dimensions of the needle, cylindrical and tapered roller bearings used in transmissions, the tolerances on the dimensions and the running accuracy, the internal clearance groups, the requirements on the materials and the heat treatment, the surface and appearance quality, the requirements on the cage and on the separable components, the load ratings and the life calculation basis, together with the test methods, the inspection rules and the marking and packaging. The 2024 edition replaces GB/T 25764-2010. For a bearing maker or a transmission manufacturer in China, this is the acceptance text.

This document specifies the identification code, structure type, overall dimensions, technical requirements, inspection rules, marking and anti-rust packaging of roller bearings for automotive transmission; describes the corresponding detection methods. This document applies to the manufacture of roller bearings for automotive transmission (hereinafter referred to as "bearings").

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in the text. Among them, for dated references, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies to this document.

GB/T 272-2017 Rolling bearings - Identification code

GB/T 274-2023 Rolling bearings - Chamfer dimension - Maximum values

GB/T 283-2021 Rolling bearings - Cylindrical roller bearings - Boundary dimensions

GB/T 297-2015 Rolling bearings - Tapered roller bearings - Boundary dimensions

GB/T 307.1-2017 Rolling bearings - Radial bearings - Geometrical product specifications (GPS) and tolerance values

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

GB/T 307.3-2017 Rolling bearings - General technical regulations

GB/T 959.1-2017 Specifications for retaining rings - Circlips

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 4199-2003 Rolling bearings - Tolerances - Definitions

8.1.1.1 Solid rings should be made of high carbon chromium bearing steel in accordance with

GB/T 18254-2016; their heat treatment quality shall comply with

GB/T 34891- 2017. The ring surface can also be treated by nitriding, carbonitriding and other heat treatment processes; its heat treatment quality shall comply with

8.2.1 Bearing tolerance

8.2.1.1 The tolerance of the bearing shall not be lower than the provisions of the ordinary grade tolerance in GB/T 307.1-2017.

8.2.1.2 The tolerance of the outer diameter E_w of the roller set of RN and RND cylindrical roller bearings shall be .

8.12 Appearance quality The working surface of the bearing shall not have cracks, rust, obvious bumps.

8.13 Life

8.13.1 After the conventional life test of the bearing, the ratio -- of the test value of its rated life to the basic rated life $L_{10} t/L_{10} h$ shall not be less than 2. If the user has special requirements, it can also be determined by negotiation with the manufacturer.

8.13.2 The life of the bearing bench simulation test shall meet the requirements of the corresponding vehicle model.

8.13.3 The durability life of the actual vehicle bearing shall meet the requirements of the corresponding vehicle model.

8.14 Others

8.14.1 The technical conditions of the matching between shaft and the bearing seat and the bearing hole are shown in Appendix A.

8.14.2 Other technical requirements shall comply with the provisions of GB/T 307.3- 2017 and JB/T 10336-2017.

8.14.3 When the user has other requirements for the bearing, it can be negotiated with the manufacturer.

9 Testing methods

9.1 Measurement of tolerances The measurement of bearing tolerances shall be in accordance with the provisions of GB/T 307.2-2005.

9.2 Inspection of roller sag

9.2.1 The roller sag can be replaced by the maximum and minimum values of the inner and outer diameters of the roller group with a stop gauge before the bearing is assembled.

9.2.2 For cylindrical roller bearings without outer rings or with detachable outer rings,

9.3 Chamfer detection The chamfer detection method shall comply with the provisions of GB/T 307.2-2005.

9.4 Measurement of rolling surface shape The measurement method of the rolling surface shape of the bearing can refer to the measurement method of the crowned roller in GB/T 4661-2015.

9.5 Measurement of surface roughness The measurement method of the bearing surface roughness shall comply with the provisions of JB/T 7051-2006.

9.6 Measurement of clearance

9.6.1 Radial clearance The measurement method of the radial clearance of the bearing shall comply with the provisions of GB/T 25769-2010.

9.6.2 Axial clearance

9.6.2.1 The measurement of the axial clearance of the NUP cylindrical roller bearing is shown in Figure 18. During the measurement, the end face of the outer ring of the bearing is pressed tightly; then the measuring load Q (100 N) is alternately applied to the inner ring of the bearing with uniform force, so that the inner ring of the bearing moves up and down along the loading direction. The difference between the average values of the two positions read from the indicator is the axial clearance value.

9.6.2.2 The measurement method of the axial clearance of double-row tapered roller bearings shall comply with the provisions of

JB/T 8236-2023, or according to the user's requirements. the plug gauge to keep it still; rotate the ring gauge for several cycles; check the rotation flexibility of the bearing.

9.11.5 HKN type bearings First press the bearing into the ring gauge (ring gauge size = bearing outer diameter D - N_6 lower deviation value); then insert the plug gauge (plug