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

GB/T 34891-2017

**Rolling bearings - Parts made from high-carbon chromium
bearing steels - Specifications for heat treatment**

滚动轴承 高碳铬轴承钢零件 热处理技术条件

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Foreword

This Standard was drafted in accordance with the rules given in GB/T 1.1-2009. This Standard was proposed by China Machinery Industry Federation. This Standard shall be under the jurisdiction of National Rolling Bearing Standardization Technical Committee (SAC/TC 98). The drafting organizations of this Standard. Luoyang Bearing Research Institute Co., Ltd., Zhejiang Tianma Bearing Group Limited Company, Zhejiang XCC Group Co., Ltd., Dong'e Shandong Steel Ball Group Co., Ltd., Jiangsu Lixing General Steel Ball Co., Ltd., Pizhou Power-Steering Bearing Co., Ltd., Xinchang Hengli Bearings Co., Ltd., Shandong Yujie Bearing Manufacturing Co., Ltd., Hebei Xintai Bearing Forging Co., Ltd., Zhejiang Jinhuan Bearing Co., Ltd., Yanshan University, Ruilian Machinery (Hangzhou) Co., Ltd., Dong E County Hua Tao Steel Ball Co., Ltd. Zhejiang Zhongji Casting & Forging Co., Ltd., Changzhou Longpont Lube Co., Ltd., Chongqing Changjiang Bearing Co., Ltd. The drafters of this Standard. Lei Jianzhong, Shi Dafang, Wang Mingzhou, Hu Linzhuang, Yang Yong, Ma Lin, Mei Yali, Zhang Yunxi, Xiao Caichao, Cai Meigui, Li Jingui, Dong Guanjun, Zhang Fucheng, Zhang Zhenhua, Fan Zhiguo, Hu Weiyong, Geng Wei, Zhao Xingxin.

Rolling Bearings - Parts Made from High-carbon Chromium Bearing Steels - Specifications for Heat Treatment

1 Scope

China's national standard for the heat treatment of rolling bearing parts made from high-carbon chromium bearing steel. It specifies the technical requirements and the test methods, with an informative annex on effective wall thickness of rings and effective diameter of rolling elements, and a normative annex on the steel ball crushing load test. High-carbon chromium bearing steel - the family the world knows as 52100 or 100Cr6 - is one of the most specialised steels in ordinary use, made to a cleanliness specification

stricter than almost anything else, and its whole value is realised in the heat treatment. The parts are austenitised, quenched to martensite and tempered at low temperature, and what comes out has to be hard enough to resist the rolling contact stresses, dimensionally stable enough not to move in service, and free of the retained austenite that would let it move later. The standard governs those outcomes rather than the furnace recipe, because the same result is reached differently in different plants.

This Standard specifies the technical requirements and test methods for annealing, quenching and tempering of G8Cr15, GCr15, GCr15SiMn, GCr15SiMo, GCr18Mo steel rolling bearing rings and rolling elements (hereinafter referred to as bearing parts) in accordance with GB/T 18254. This Standard is applicable to the heat treatment quality inspection of the above-mentioned steel bearing parts process and finished parts, and also to the heat treatment quality inspection of other high-carbon chromium steel bearing parts. For bearing parts with special requirements, perform according to the specifications of corresponding product drawings.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only the dated version applies to this document. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 230.1-2009, Metallic materials. Rockwell hardness test. Part

3 Technical Requirements

3.1 Technical requirements of bearing parts after spheroidizing annealing The technical requirements of bearing parts after spheroidizing annealing are as specified Table 1.

4 Test method

The test method is as specified in Table 7.

Appendix A

(Informative) Effective wall thickness of the ferrule and effective diameter of the roller For the effective wall thickness of the ferrule and the effective diameter of the roller, see Figure A.1.

Appendix B

(Normative) Steel ball crushing load test procedure and crushing load value after heat treatment B.1 Scope This appendix specifies the crushing load test procedure and crushing load value for steel balls whose nominal diameter is 3 mm ~