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

GB/Z 13672-2022

Replacing GB/T 13672-1992

Test method for scuffing load capacity of gears

齿轮胶合承载能力试验方法

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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 for Standardization Documents" drafting. This document replaces GB/T 13672-1992 "Test Method for Bearing Capacity of Gear Bonding". Compared with GB/T 13672-1992, except In addition to structural adjustments and editorial changes, the main technical changes are as follows:

- a) The description of the scope of application has been changed, and it is clarified that the test method includes two aspects, that is, "different lubricating oils under specific test conditions The test method is based on the test gear's glued bearing capacity, and the comparison of the glued bearing capacity of different gears under the same test conditions Method" (see Chapter 1, Chapter 1 of the.1992 edition);
- b) Added terms and definitions (see Chapter 3);
- c) The symbols and descriptions have been changed (see Chapter 4, Chapter 3 of the.1992 edition);
- d) The purpose of the test has been added (see Chapter 5);
- e) The test machine requirements for the comparison of gear bonding capacity are added (see 6.1.2);
- f) Added the formula for calculating the test parameters of the comparison gear bonding capacity [see formula (1) and formula (2)];
- g) Changed the requirements for the use of lubricating oil (see 6.3, 5.3 of the.1992 edition);
- h) Added the test types for comparison of gear bonding capacity (see 7.3,
- i) Increased the failure evaluation of the gear bonding capacity compared to that (see 8.2);
- j) Added the test steps for comparison of gear bonding capacity and handling of unconventional events (see

9.3 and 9.4). Please note that some contents of this document may refer to patents. The issuing agency of this document assumes no responsibility for identifying patents. This

document is proposed and managed by the National Gear Standardization Technical Committee (SAC/TC52). This document is drafted by: Zhengzhou Machinery Research Institute Co., Ltd., Shaanxi Fast Gear Co., Ltd., Nanjing High Precision Gear Group Co., Ltd. Co., Ltd., Hebei University of Technology, CITIC Heavy Industry Machinery Co., Ltd., China Machinery Productivity Promotion Center, Suote Transmission Equipment Co., Ltd., Research on Hunan Desheng Intelligent Technology Co., Ltd., Northwestern Polytechnical University, Hunan Panco Transmission Technology Co., Ltd., and power industry product quality standards Co., Ltd., Zhejiang Feng'an Gear Co., Ltd., Dongguan Xinghuo Gear Co., Ltd., China Aviation Development Zhongchuan Machinery Co., Ltd., Henan Mechanical and Electrical Vocational College. The main drafters of this document. Liu Yi, Wang Zhigang, Wu Mingjun, Chen Yong, Qu Tie, Li Haixia, Li Jinfeng, Wei Fude, Yan Shidang, Hou Shengwen, Zhang Lei, Wang Haiwei, Zhou Changjiang, Hu Bo, Ma Rubo, Hong Xinyang, Tong Aijun, Tu Demin, Dong Fan, Yang Chao, Qi Wenzheng, Wang Peng, Gong Yu, Liu Geng, Ren Jihua, Zhang Xinwei, Li Jiqiang, Gao Jianping, Ren Guanlin, Pu Qiulin, Dai Yong. This document was first published in 1992, and this is the first revision. Test method for bearing capacity of gear bonding

1 Scope

GB/Z 13672-2022 is the Chinese national standard on test method for scuffing load capacity of gears, in the field of mechanical systems and components. The /Z suffix marks it as a guiding technical document: it does not prescribe requirements that can be certified against, but sets out the technique, the method or the state of the art that the standards bodies recommend following. It was issued on 12 October 2022 by the State Administration for Market Regulation; Standardization Administration of China. As a guiding technical document it carries no separate date of entry into force: it applies from publication.

Classification: ICS 21.200, CCS J17. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document specifies the test method for the bonding load capacity of different lubricating oils on the test gear under specific test conditions, and the test method for the same test. The comparison method of the gluing bearing capacity of different gears under different conditions, including test purpose, test equipment, test type, failure evaluation, test procedure and test reports. This document applies to the heat caused by the rupture of the lubricating oil film on the tooth surface due to the high temperature caused by the load and the sliding of the tooth surface under the condition of oil lubrication. Glue damage test. This document does not apply to the low tooth surface sliding speed caused by too high pressure on the tooth surface, severe partial load or insufficient lubrication, etc. of cold gluing.

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text. Among them, dated references For documents, 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 1356 Standard basic rack tooth profiles for cylindrical gears for general machinery and heavy machinery

GB 1922-2006 Solvent oil for paint and cleaning

GB/T 2821 Geometric element codes of gears

GB/T 3374.1 Gear Terms and Definitions Part

3 Terms and Definitions

The following terms and definitions defined in GB/T 2821 and GB/T 3374.1 apply to this document.

3.1 glued scuffing Damage caused by adhesive wear on the gear meshing surfaces in the sliding direction. Note

1.Gluing is the migration of material on the same tooth surface or different tooth surfaces due to severe adhesion, or material loss due to welding and tearing. Note

2.Typical tooth surface gluing generally occurs under high temperature, high pressure or high relative sliding speed, etc., due to the lack of lubricating oil film between the meshing tooth surfaces or damage caused. Note

3.Abrasion is classified as abrasive wear, not gluing.

3.2 Under the test conditions of the specified device, the maximum load that the lubricating oil can withstand against gear sticking.

5 Purpose of the test

5.1 Test oil bonding capacity Under the specified test conditions, the standard test gear made of specific parameters, specific materials and specific processes is loaded and operated, and the test is passed. Gear failure, test and study the bonding capacity of different oils.

5.2 Comparison of bearing capacity of gears Follow the principle of single variable, under different oil products and lubrication methods, use different materials, different processing techniques or different tooth shapes and other conditions The comparison test gear is