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

GB/T 7948-2024

Plain bearings - Test method for PV limit of plastic bushes

滑动轴承 塑料轴套极限PV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 is required. This document replaces GB/T 7948-1987 "Limit PV test method for plastic bearings". In addition to structural adjustments and editorial changes, the main technical changes are as follows: The scope of the standard has been changed (see Chapter 1, Chapter 1 of the 1987 edition); - Added the terms and definitions of "nominal contact area", "relative sliding velocity" and "specific load" (see 3.1,

3.2 and 3.3); - The definitions of "PV value" and "limit PV value" have been changed (see 3.4, 3.5, 1.1,

1.2 of the 1987 edition); - Added test principles (see Chapter 4); - Changed the instrumentation requirements (see Chapter 5, Chapter 3, 5.6, Figure 4 of the 1987 edition); - The specimen requirements have been changed (see Chapter 6, Chapter 2 of the 1987 edition); - The test environment and test preparation requirements have been changed (see 7.1, 7.2, Chapter 4 of the 1987 edition); - Added lubrication method (see 7.3); - The relative sliding linear velocity requirements have been changed (see 7.4,

5.2 of the 1987 edition); - The fit clearance requirements have been changed (see 7.5,

2.3 of the 1987 edition); - The test procedure has been changed (see Chapter 8, Chapter 5 of the 1987 edition); - Added test result assessment (see Chapter 9); - The calculation contents related to the limit PV value have been changed (see 10.3,

6.3 of the 1987 edition); - The contents of the test report have been changed (see Chapter 11, Chapter 7 of the 1987 edition). - Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document was proposed by the China Machinery Industry Federation. This document is under the jurisdiction of the National Technical Committee for Standardization of Sliding Bearings (SAC/TC 236). This document was drafted by: Hefei Bolin New Materials Co., Ltd., China Machinery Productivity Promotion Center Co., Ltd., Shuangfei Oil-free Bearing Group Group Co., Ltd., Zhejiang Changsheng

Sliding Bearing Co., Ltd., Zhejiang Zhongda Precision Parts Co., Ltd., Zhejiang Changsheng Plastic Shaft Cheng Technology Co., Ltd., Jiaxing Meitel Baoxin Machinery Industry Co., Ltd., China Machinery Testing Equipment Co., Ltd., Shandong Fuma Bearing Co., Ltd. Company, Huayi Bearing Technology (Jiangsu) Co., Ltd. This document is interpreted by the National Technical Committee for Sliding Bearing Standardization. This document was first published in 1987 and this is the first revision. Sliding bearings - Plastic bushing limit PV test method

1 Scope

GB/T 7948-2024 gives the test method for the PV limit of plastic plain bearing bushes. The PV limit, the product of contact pressure and sliding velocity at which the bearing fails, is the single number by which dry and marginally lubricated plastic bushes are selected, and it is not a material constant: it depends on the counterface, the clearance, the heat path out of the bearing and the test duration, which is why a comparable figure requires a defined method. The standard sets the principle, the test rig with its shaft, its counterface material and finish and its loading and heat dissipation arrangement, the specimen and its mounting and running clearance, the conditioning, the test procedure with the stepwise increase of pressure or velocity, the measurement of friction, wear and bearing temperature, the criteria by which the limit is judged to have been reached, whether by temperature runaway, wear rate or seizure, the calculation and expression of the PV limit, and the report. It takes effect on 1 January 2025.

This document describes the limiting PV values of plastic bushings in the form of rotational motion under dry friction, boundary lubrication with oil or grease. Test method. This document is applicable to the determination of the limiting PV value of plastic and plastic sleeves with plastic coverings. This document is not applicable to the determination of the limiting PV value of plastic bushings with oscillating or linear reciprocating motion.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies. in this document.

GB/T 2889 (all parts) Terms, definitions, classification and symbols for sliding bearings

GB/T 3974 Dimensions and tolerances of thermoplastic sleeves for sliding bearings

GB/T 12613.1 Sliding bearing rolled sleeves Part

3 Terms and definitions

GB/T 2889 (all parts) and the following terms and definitions apply to this document.

3.1 Nominal contact area projected bearing area The product of the bearing width and the inner bore diameter.

Note. The projection area of the bearing surface (semi-cylinder) perpendicular to the load direction.

3.2 relative sliding linear velocity The relative sliding velocity between the shaft and the bearing surface.

3.3 specific bearing load Specific pressure The load per unit nominal contact area of a bearing.

3.4 PV value The product of specific load (P) and relative sliding velocity (V).

3.5 PV limit value The product of the limit load that the bearing can bear under a certain relative sliding linear velocity and the relative sliding linear velocity, or the product of the limit load that the bearing can bear under a certain relative sliding linear velocity. The product of the maximum relative sliding linear velocity that the bearing can withstand and the specific load.

Note. The unit is MPa·m/s.