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

GB/T 21466.3-2025

Replacing GB/T 21466.3-2008

**Plain bearing - Hydrodynamic plain journal circular cylindrical
bearings under steady-state conditions - Part 3: Permissible
operational parameters**

滑动轴承 稳态条件下流体动压径向圆柱形轴承 第3部分：许用运行参数
(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is Part 3 of GB/T 21466 "Sliding bearings, hydrodynamic radial cylindrical bearings under steady-state conditions".

The following sections have been released.

---Part 1: Calculation Process;

---Part 2: Characteristic Values;

---Part 3: Permitted Operating Parameters.

This document replaces GB/T 21466.3-2008 "Fluid hydrodynamic radial sliding bearings under steady-state conditions - Part 3: Circular sliding bearings".

The main technical changes in "Permissible Operating Parameters" compared to GB/T 21466.3-2008, apart from structural adjustments and editorial changes, are as follows.

---Added "Symbols and Units" (see Chapter 4).

This document is modified to adopt ISO 7902-3:2020 "Hydrodynamic radial sliding bearings under steady-state conditions - Cylindrical sliding bearings - Part 3" Part. Permissible Operating Parameters.

The technical differences between this document and ISO 7902-3:2020, and the reasons therefor, are as follows.

---ISO 7902-1:2020 has been replaced with the normatively referenced GB/T 21466.1-2025 to adapt to my country's technical conditions and increase...

Increase operability.

The following editorial changes have been made to this document.

---To align with existing standards, the standard title has been changed to "Sliding Bearings. Hydrodynamic Radial Cylindrical Bearings under Steady-State Conditions - Part 3" Part. Permissible Operating Parameters;

Two notes have been added in version 5.2.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no 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 on Standardization of Sliding Bearings (SAC/TC236).

Introduction

GB/T 21466 "Sliding bearings - hydrodynamic radial cylindrical bearings under steady-state conditions" is proposed to consist of three parts.

---Part 1: Calculation Process. The purpose is to establish the calculation process for the performance of hydrodynamic oil-lubricated sliding bearings.

---Part 2: Characteristic Values. The purpose is to establish the calculation process for hydrodynamic cylindrical radial sliding bearings under fully lubricated conditions.

The basic function values used in the text.

---Part 3: Permissible Operating Parameters. The purpose is to establish the permissible operating parameters for hydrodynamic cylindrical radial sliding bearings under fully lubricated conditions.

Empirical values for minimum film thickness, maximum allowable bearing temperature, and maximum allowable specific pressure.

Fluid dynamic radial pressure under steady-state conditions of sliding bearings Cylindrical bearings, Part 3: Permissible operating parameters

1 Scope

This document specifies empirical values for the minimum permissible film thickness h_{lim} , the maximum permissible bearing temperature T_{lim} , and the maximum permissible specific pressure p_{lim} .

In certain specific applications, such as when information provided by the manufacturer needs to be considered, the empirical values can be modified. (Calculation examples and symbols follow.) the definition of the symbol is given in GB/T 21466.1.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

GB/T 21466.1-2025 Sliding bearings - Hydrodynamic radial cylindrical bearings under steady-state conditions - Part 1: Calculation process (ISO 7902-1:2020, MOD)

3 Terms and Definitions

This document does not contain any terms or definitions that need to be defined.

4 Symbols and Units

Symbols and explanations are shown in Table 1. Explanations of symbols not listed in Table 1 shall be in accordance with Table 1 of GB/T 21466.1-2025.

Table 1 Symbols and Explanations

Symbol Explanation Units B. Bearing nominal width (m) C. Bearing nominal clearance m D. Bearing nominal diameter (inner diameter) in meters E is the dimensionless elastic modulus.

G is the dimensionless shear modulus.

h_{wav} surface waviness (see Figure 3) m $h_{wav,eff}$ equivalent surface waviness m $h_{wav,eff,lim}$ Permissible maximum equivalent ripple m $h_{wav,lim}$ Permissible maximum waviness m i. Ripple count 1