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

GB/T 21466.2-2025

Replacing GB/T 21466.2-2008

**Plain bearing - Hydrodynamic plain journal circular cylindrical
bearings under steady-state conditions - Part 2: Functions used
in the calculation procedure**

滑动轴承 稳态条件下流体动压径向圆柱形轴承 第2部分：特征数值
(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 2 of GB/T 21466 "Sliding bearings - hydrodynamic radial cylindrical bearings under steady-state conditions".

GB/T 21466 has published the following parts.

---Part 1: Calculation Process;

---Part 2: Characteristic Values;

---Part 3: Permitted Operating Parameters.

This document replaces GB/T 21466.2-2008 "Fluid hydrodynamic radial sliding bearings under steady-state conditions - Part 2" the main technical changes in the standard "Functions Used in the Calculation Process" compared to GB/T 21466.2-2008, aside from structural adjustments and editorial changes, are as follows.

as follows.

---Added "The symbols and descriptions in Table 1 of GB/T 21466.1-2025 apply to this document" (see Chapter 4).

This document is modified to adopt ISO 7902-2:2020 "Hydrodynamic radial sliding bearings under steady-state conditions - Cylindrical bearings - Part 2.

Characteristic values.

The technical differences between this document and ISO 7902-2:2020, and the reasons therefor, are as follows.

---ISO 7902-1:2020 has been replaced with the normatively referenced GB/T 21466.1-2025 (see Chapter 4), between the two documents the consistency level is modified to increase operability.

The following editorial changes have been made to this document.

---To align with existing standards, the standard name has been changed to "Plain Condition Standard for Hydrodynamic Radial Cylindrical Bearings under Steady-State Conditions" (Category 2).

Part. Feature Values;

---Added numbering to some formulas in the file.

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 temperature, and maximum allowable specific pressure.

Fluid dynamic radial pressure under steady-state conditions of sliding bearings Cylindrical bearings, Part 2: Characteristic values

1 Scope

This document specifies the basic function values used in the calculation of hydrodynamic radial sliding bearings and cylindrical bearings under fully lubricated conditions.

The assumptions and boundary conditions corresponding to these values are given in GB/T 21466.1. The parameter values necessary for the calculation process can be obtained from the bearing.

The characteristics are obtained from the tables, graphs, and formulas.

For descriptions and calculation examples of the symbols used, see 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 Bearing Characteristic Parameter Table

The symbols and explanations in Table 1 of GB/T 21466.1-2025 apply to this document.

Tables 1 through 30 show the variations of the following parameters with eccentricity ϵ , bearing wrap angle ω , and width-to-diameter ratio B/D .

---Offset angle β ;

---Somerfield number S_o ;

---Consider the total friction coefficient f'/ψ in both the load-bearing and non-load-bearing zones of the oil film;

---Considering only the friction coefficient f/ψ in the oil film bearing area;

---Dimensionless oil film pressure side leakage flow rate Q^*3 .

Table 1. Basic parameter values when $\omega=360^\circ$ and $B/D=1.5$

ϵ	β	S_o	f'/ψ	f/ψ	Q^*3	0.2	0.4	0.6	0.8	0.9	0.925	0.95	72.5236	62.6588	51.9692
27.961	24.6184	19.8007	0.4273	1.0005	1.9724	10.1382	13.8256	22.044	7.5992	3.6035	2.2272	0.9218	0.7906	0.6173	0.404
2.6582	1.6695	1.0736	0.6678	0.5359	0.3586	0.0935	0.1361	0.1759	0.198	0.201	0.203				