



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

GB/T 39741.1-2021

Plain bearings - Tolerances - Part 1: Fits

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Foreword

GB/T 39741 "Tolerance of Sliding Bearings" consists of the following two parts.

---Part 1.Cooperation;

---Part 2.Geometric tolerances and surface roughness of shaft and thrust shoulder.

This part is Part 1 of GB/T 39741.

This section was drafted in accordance with the rules given in GB/T 1.1-2009.

The translation method used in this section is equivalent to ISO 12129-1.2019 "Tolerance of Sliding Bearings Part 1.Fitting".

This part was proposed by China Machinery Industry Federation.

This part is under the jurisdiction of the National Sliding Bearing Standardization Technical

Committee (SAC/TC236).

Drafting organizations of this section. China Machinery Productivity Promotion Center,
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This part is explained by the National Technical Committee for Standardization of Sliding
Bearings.

Introduction

Since the standard deviations specified by ISO 286-1 and ISO 286-2 cannot be used to
establish a bearing clearance fit, the design of sliding bearings requires

The clearance fit corresponding to the average relative clearance of all bearings within the
nominal size range (with approximately equal), so this document is formulated.

Sliding Bearing Tolerance Part 1. Fit

1 Scope

This part of GB/T 39741 specifies metal sliding shafts with an average relative bearing
clearance ψ of 0.56 per mille~3.15 per mille in general machinery

The supporting matching system and other gap ranges can be selected according to the
technical requirements of specific applications.

This matching system is not suitable for thin-walled bushings and thin-walled bushings,
because thin-walled bushings and thin-walled bushings are unique, and they mainly
measure wall thickness

Rather than the diameter, and the size will vary with assembly.

This part does not apply to non-circular bearings or tilting pad bearings, nor does it apply to
extreme clearance (large or very small) conditions.

Special tolerance requirements determined after performance.

This section is mainly applicable to rotating mechanical parts and spindles, but also to
similar applications.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

Terms and definitions are not given in this document.

The website of the ISO and IEC standardized terminology database is as follows.

4 Cooperating system

The matching system specified in this section is the basic hole system, and the basic deviation H of the bearing hole diameter is in accordance with ISO 286-2. The tolerance zone of the journal and

The corresponding bearing average relative clearance ψ_{sim} is related.

5 Average relative clearance of bearings

The average relative clearance ψ_{sim} (unit: one thousandth, per mille) of the bearing in a certain nominal size range is given by equations (1) and (2).

$\psi_{sim} =$

$\frac{CD_{,m}}{D_m}$

(1)

Where.

$CD_{,m}$ ---the average value of the absolute diameter clearance of the bearing, in micrometers (μm).

$CD_{,m} =$

$\frac{CD_{,max} + CD_{,min}}{2}$

(2)

Where.

$CD_{,max}$ ---the maximum value of the absolute diameter clearance of the bearing;

$CD_{,min}$ ---the minimum value of the absolute diameter clearance of the bearing;

D_m --- the arithmetic average of the nominal size, in millimeters (mm).

Example.

The nominal size range is 250mm~280mm, then the arithmetic average of the nominal size is.

$D_m =$

2 mm=265mm

For $\psi_{\text{sim}}=1.6$ per mille, the average bearing diameter clearance is calculated by Table 1 and formula (2).

$CD_m =$

0.466 0.382

2 mm=0.424mm

So as to get the average relative clearance of the bearing.

$\psi_{\text{sim}} =$

CD_m

$D_m =$

0.424

6.1 Tolerance

Tolerances are selected according to the following principles. For the same bearing average relative clearance ψ_{sim} , all between the minimum and maximum nominal size

In this case, the maximum deviation of the relative clearance of all bearings within the tolerance zone is within the range. The smaller limit deviation depends on the economy

Sex and processing methods.

In each fit, the tolerance zone of the journal is smaller than the tolerance zone of the corresponding bearing hole by 1 IT (the basic tolerance specified in ISO 286-1, etc.

level).

6.2 Basic deviation

The basic deviation is determined by the average relative clearance ψ_{sim} of the bearing.

6.3 Average relative clearance value of bearing

Each of the following values of ψ_{sim} corresponds to a tolerance zone, and the unit is per mille.

---0.56;

---0.8;

---1.12;