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

GB/T 18844-2002

Replacing GB/T 18844-2002

**Plain bearings -- Type, appearance and characterization, causes
of damage to metallic hydrodynamic bearings -- Part 1: General
(English Translation)**

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Foreword

GB/T 18844 "Sliding bearing hydrodynamic metal bearing damage type, appearance characteristics and cause analysis" by the following two parts composition.

--- Part 1. General;

--- Part 2. Cavitation and countermeasures.

This part is the first part of GB/T 18844.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part replaces GB/T 18844-2002 "The terminology, characteristics and causes of damage and appearance change of sliding bearings". And GB/T 18844-Compared with 2002, the main technical changes are as follows.

--- Comprehensively adjusted the standard structure and classified according to the type of damage;

--- Add Chapter 4 "Types, characteristics and causes of bearing damage";

--- Add Chapter 5 "Guidelines for Damage Analysis";

---Add a typical example of a partial failure type;

--- Modify GB/T 18844-2002 Chinese figure error [Fig. 30b] The picture is rotated by 180°, and the picture 45 axis is rotated in the opposite direction].

This section uses the redrafting method to modify the type of damage and the use of ISO 7146-1:2008 "sliding bearing hydrodynamic metal bearings.

View Part 1. General Principles.

The technical differences between this part and ISO 7146-1:2008 and their reasons are as

follows.

---About the normative reference documents, this part has made technical adjustments to adapt to China's technical conditions, adjustments the situation is reflected in Chapter 2, "Regulatory References", and the specific adjustments are as follows.

- Replace ISO 7146-2 with GB/T 18844.2 modified to international standards.

---4.3 Damage appearance form increases "p) backing cracking"; Table 1 and Table A.1 increase "backing cracking" and possible damage causes "micro Dynamic wear" to supplement the appearance of the fragile wear and tear that is not included in the international standard;

--- Add the typical appearance of typical failure cases in China's industry to "dynamic overload", "lubrication", thin-wall bearing "hydrogen diffusion" Typical damage appearance description (6.3.1, 6.6.1, 6.10.1); Figure 18~20 increase shaft rotation and arrow; Figure 57b) "Feature (2)" Increase "opposite to the upper and lower tiles"; add a partial failure type typical example map [Fig. 16b), Fig. 16c), Fig. 16d), Fig. 49a),

Figure 50b), Figure 50c), Figure 50d)], to facilitate reference by industry failure analysts;

--- "Possible causes of damage". 6.3.2 Supplement "Additional loads caused by various reasons, such as high pressure generated at the protruding parts Areas, as well as high temperatures and edge loading, can increase the risk of fatigue. "; 6.10.2 added to increase "aluminum alloy" for industry failure Analysis of personnel analysis provides guidance;

--- Figure 57g) "Cause" increases the "deformation around the positioning tongue" to provide guidance for industry failure analysis personnel analysis.

This part was proposed by the China Machinery Industry Federation.

This part is under the jurisdiction of the National Technical Committee for Standardization of Plain Bearings (SAC/TC236).

This section is responsible for drafting the unit. China Machine Productivity Promotion Center.

Participated in the drafting of this section. Chengdu Shengsanqiang Railway Fittings Co., Ltd., Yantai Dafeng Bearing Co., Ltd., Linan Oriental Sliding Bearing Co., Ltd., Shanghai Nuclear Power Industrial Co., Ltd., Wenzhou Huakang Auto Parts Co., Ltd.

This part is explained by the National Technical Committee for Standardization of Plain Bearings.

The previous versions of the standards replaced by this section are.

---GB/T 18844-2002.

Introduction

In practice, bearing damage is often the result of several mechanisms acting simultaneously. Damage may be caused by improper assembly or repair, or Defects caused by manufacturing defects in bearings, housings or mating surfaces. In some cases, damage may also be due to a compromise in considering economic benefits.

Caused by design or unforeseen operating conditions. Because damage is a comprehensive design, manufacturing, assembly, operation, maintenance and other factors the result is abnormal, so it is often difficult to determine the primary cause.

When the bearing is extremely damaged or the bearing is destroyed, the evidence is likely to disappear and it will not be possible to identify how the damage occurred.

In any case, understanding the bearing installation, actual operating conditions, and maintenance history is critical to analyzing the cause of failure.

need.

The classification of bearing damage established in this standard is based primarily on the visible features of the sliding surface and other parts. In order to be exact to determine the cause of bearing damage, various factors need to be considered.

Since there are more than one reason for causing similar effects on the running surface, it is often insufficient to describe the appearance to determine the cause of the damage. in in this case, the operating conditions must also be considered. Therefore, Chapter 4 is subdivided into several sub-divisions that contain the appearance of damage and the type of damage.

Terms.

Chapter 5 provides useful guidance for the damage analysis program.

In Chapters 6 and 7, all representative types of damage associated with the damaged appearance are given.

Sliding bearing hydrodynamic metal bearing Damage type, appearance characteristics and cause analysis Part 1. General

1 Scope

This part of GB/T 18844 defines the type of damage that occurs in the use of hydrodynamically lubricated metal plain bearings and journals.

Meaning, description and classification. This helps to understand the various types of damage that can occur.

This section only considers damages that have a well-defined appearance and can be

attributed to height-determined causes;

The pictures and schematics are explained.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 18844.2 Plain bearings - Fluid dynamic pressure metal bearings - Types of damage, s Corrosion and countermeasures (GB/T 18844.2-2018, ISO 7146-2:2008, MOD) ISO 4378-1 Plain bearings - Terms, definitions, classifications and symbols - Part 1. Design, bearing materials and their properties

(Plainbear-ings-Terms,definitions,classificationandsymbols-Part 1:

Design,bearingmaterialsandtheir Properties) ISO 4378-2 Plain bearings - Terms, definitions, classifications and symbols - Part 2. Friction and wear

(Plainbearings-Terms,definitions,classificationandsymbols-Part 2: Frictionandwear) ISO

4378-3 Plain bearings - Terms, definitions, classifications and symbols - Part 3. Lubrication

(Plainbearings-Terms, defi-Ninits,classificationandsymbols-Part 3: Lubrication) ISO 4378-4

Plain bearings - Terms, definitions, classifications and symbols - Part 4. Basic symbols

(Plainbearings-Terms, Definitions,classificationandsymbols-Part 4: Basicsymbols)

3 Symbols and units

The following terms and definitions defined by ISO 4378-1, ISO 4378-2, ISO 4378-3, ISO 4378-4 apply to this document.

Sliding bearing damage damage to plain bearings Bearing damage During operation, all appearance changes that are detrimental to the performance of the bearing occur on the inner and outer surfaces of the plain bearing.

4.1.1 Overview

Damage to sliding bearings is a phenomenon in which their tribological function deteriorates, usually accompanied by changes in appearance. Damage begins with the original cause of damage