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NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

GB/T 14910-2023

Replacing GB/T 14910-1994

Plain bearings - Technical requirements on backings for thick-walled multilayer bearings

滑动轴承 厚壁多层轴承衬背技术要求

(English Translation)

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Preview: page 1 of 4 shown, 5 in the full document. Complete English PDF, instant download:
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Table of Contents

Foreword

1 Scope

2 Normative reference documents

3 Terms and definitions

4 Backing material

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 replaces GB/T 14910-1994 "Technical Requirements for Thick-walled Multilayer Bearing Backings for Sliding Bearings" and is the same as GB/T 14910-1994 in comparison, in addition to structural adjustments and editorial changes, the main technical changes are as follows:

---Changed the scope of the document (see Chapter 1, Chapter 1 of the:1994 edition);

---Changed the requirements for backing materials (see Chapter 4, Chapter 3 of the:1994 edition);

---Changed the requirements for the joint surface (see Chapter 5, Chapter 4 of the:1994 edition):

This document has been modified to adopt ISO 6280:2018 "Requirements and Guidelines for Thick-walled Multilayer Bearing Backings for Sliding Bearings":

The technical differences between this document and ISO 6280:2018 and their reasons are as follows:

---Added normative reference to GB/T 2889.1 (see Chapter 3) to adapt to my country's technical conditions and increase operability;

---It is added that the steel backing material should be 10 steel, 15 steel, 20 steel specified in GB/T 699, or Q235 specified in GB/T 700 Steel; the cast steel backing material should be ZG200-400 specified in GB/T 11352 (see 4.2) to meet the needs of the Chinese market;

---It is added that the cast iron backing material should be HT250 or other grades of cast iron specified in GB/T 9439 (see 4.3) to suit our needs:

domestic market demand;

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---Change the example materials CuSn10 and CuPb5Sn5Zn5 of ISO 6280:2018 to those specified in GB/T 1176 ZCuSn10P1 and ZCuPb5Sn5Zn5 are cast copper alloy materials (see 4.4) to meet the needs of the Chinese market:

The following editorial changes have been made to this document:

---In order to coordinate with the existing standards, the name of the standard is changed to "Technical Requirements for Thick-walled Multi-layer Bearing Backings of Sliding Bearings";

---Changed the expression of surface roughness of the backing's bonding surface (see Chapter 5):

Please note that some content in this document may be subject to patents: The publisher of this document assumes no responsibility for identifying patents:

1 Scope

This document specifies the technical requirements for thick-walled multi-layer sliding bearings to obtain the best combination of bearing alloy and backing: The quality of the combination depends on the material:

The chemical composition, stress state, structural design of the material and the processing method of the backing joint surface:

This document applies to the selection and processing of backing materials for thick-walled multi-layer sliding bearings:

Note: Controlling the manufacturing process is an important condition for obtaining the optimal combination quality of bearing alloy and backing:

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text: Among them, the dated quotations for undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to this document:

GB/T 2889.1 Sliding bearing terms, definitions, classifications and symbols Part 1: Structure, bearing materials and their properties

3 Terms and definitions

The terms and definitions defined in GB/T 2889.1 apply to this document:

Preview: page 3 of 4 shown, 5 in the full document. Complete English PDF, instant download:
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4 Backing material

4.1

Overview

The backing material can be steel, cast steel, cast iron containing flake graphite or spheroidal graphite, or cast copper alloy:

For cast iron backings, dovetail grooves can be machined on the backing joint surface before casting the bearing alloy to increase mechanical anchoring force:

4.2

Steel and cast steel Before casting the bearing alloy, the steel and cast steel backing materials should be normalized to relieve stress:

The steel backing material should be 10 steel, 15 steel, 20 steel specified in GB/T 699, or Q235 steel specified in GB/T 700:

The cast steel backing material should be ZG200-400 specified in GB/T 11352:

Typical chemical compositions of backing materials and their contents are as follows:

---C< 0.25%(mass fraction);

---Cr<=1.1% (mass fraction);

---Ni< 0.5% (mass fraction);

---Mn<=1.3% (mass fraction):

When the backing thickness is greater than or equal to 40mm, the hydrogen content should not exceed 1:7mg/kg: Appropriate process measures should be adopted to reduce and control the hydrogen content makes it meet the specified requirement range to ensure the safe operation of the bearing in the early stage of work:

4:3 cast iron

The cast iron backing material should be HT250 or other grades of cast iron specified in GB/T 9439, whose metallographic structure is ferrite or mostly

Preview: page 4 of 4 shown, 5 in the full document. Complete English PDF, instant download:
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