भारतीय मानक

Indian Standard

IS 16298 : 2024
ISO 6280 : 2018

प्लेन बियरिंग्स — मोटी दीवार वाली बहुपरत बियरिंग्स के लिए बैकिंग की आवश्यकताएं और मार्गदर्शन

(पहला पुनरीक्षण)

Plain Bearings — Requirements and Guidance on Backings for Thick-Walled Multilayer Bearings

(First Revision)

ICS 21.100.10

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, 9 बहादुर शाह ज़फर मार्ग, नई दिल्ली - 110002
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI - 110002
www.bis.gov.in www.standardsbis.in

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Price Group 3

Bearing Sectional Committee, PGD 13

NATIONAL FOREWORD

This Indian Standard (First Revision) which is identical to ISO 6280 : 2018 ‘Plain bearings — Requirements and guidance on backings for thick-walled multilayer bearings’ issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendation of the Bearing Sectional Committee and approval of the Production and General Engineering Division Council.

This standard was first published in 2017. This revision of this standard has been undertaken to align it with the latest version of ISO 6280.

The major changes incorporated in this revision are as follows:

a) The scope has been revised;
b) A new clause 3 Terms and definitions has been added; and
c) Clauses 4 and 5 have been revised.

The text of ISO standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words ‘International Standard’ appear referring to this standard, they should be read as ‘Indian Standard’; and

b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*).’ The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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PLAIN BEARINGS — REQUIREMENTS AND GUIDANCE ON BACKINGS FOR THICK-WALLED MULTILAYER BEARINGS

(First Revision)

1 Scope

This document gives requirements and guidance to obtain the optimum bond between backing and bearing metal for thick-walled multilayer plain bearings. This optimum bond depends on the chemical composition, the state of stress, the structural arrangement and the machining of the bond surface of the backings.

NOTE Control of the manufacturing process is an important requirement to achieve an optimum bond between backing material and bearing metal.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Backing materials

4.1 General

Steel and cast steel, cast iron with lamellar and spheroidal graphite as well as cast copper alloys are used as backing materials.

For cast iron backing, additional dovetailed grooves may be used on bond surface for mechanical anchoring.

4.2 Steel and cast steel

Before lining, the backing is heat-treated for normalizing and stresses relieving.

Typical contents of elements for bonding:

— C < 0,25 % (mass fraction);

— Cr ≤ 1,1 % (mass fraction);

— Ni < 0,5 % (mass fraction);

— Mn ≤ 1,3 % (mass fraction).

The hydrogen contents of a backing having a thickness of 40 mm or more shall be not more than 1,7 ppm. A properly-controlled process shall be used to reduce the hydrogen content to a level that ensures trouble-free running of the bearing during its initial period operation.

4.3 Cast iron

The microstructure should be ferritic or largely ferritic.

Typical contents of elements for bonding:

— Si < 2,5 % (mass fraction);

— P < 1,2 % (mass fraction);

— C < 3,35 % (mass fraction).

4.4 Cast copper alloys

EXAMPLES CuSn10, CuPb5Sn5Zn5.

5 Machining of bond surface

The bond surface on the backing should have a surface roughness of

R_a = 8 µm maximum.

Final machining should be carried out without material cutting fluids unless degreasing methods are subsequently used prior to metallization.

Bureau of Indian Standards

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Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the website-www.bis.gov.in or www.standardsbis.in.

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Amendments Issued Since Publication

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BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones: 2323 0131, 2323 3375, 2323 9402 *Website*: www.bis.gov.in

Regional Offices:		*Telephones*
Central	: 601/A, Konnectus Tower -1, 6th Floor, DMRC Building, Bhavbhuti Marg, New Delhi 110002	2323 7617
Eastern	: 8th Floor, Plot No 7/7 & 7/8, CP Block, Sector V, Salt Lake, Kolkata, West Bengal 700091	2367 0012 2320 9474
Northern	: Plot No. 4-A, Sector 27-B, Madhya Marg, Chandigarh 160019	265 9930
Southern	: C.I.T. Campus, IV Cross Road, Taramani, Chennai 600113	2254 1442 2254 1216
Western	: Plot No. E-9, Road No.-8, MIDC, Andheri (East), Mumbai 400093	2821 8093

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