
**Plain bearings — Requirements and
guidance on backings for thick-walled
multilayer bearings**

*Paliers lisses — Caractéristiques des supports pour coussinets
multicouches épais*

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by ISO/TC 123, *Plain bearings*, Subcommittee SC 2, *Materials and lubricants, their properties, characteristics, test methods and testing conditions*.

This second edition cancels and replaces the first edition (ISO 6280:1981), which has been technically revised. The main changes compared to the previous edition are as follows:

- The Scope has been revised.
- Normative references have been updated.
- A new Clause 3 *Terms and definitions* has been added.
- Clauses 4 and 5 have been revised.

Plain bearings — Requirements and guidance on backings for thick-walled multilayer bearings

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

$$R_a = 8 \mu\text{m maximum.}$$

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

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