INTERNATIONAL STANDARD

ISO 12131-2

Third edition
2023-06

Plain bearings — Hydrodynamic plain thrust pad bearings under steady-state conditions —

Part 2: Functions for the calculation of thrust pad bearings

Paliers lisses — Butées hydrodynamiques à patins géométrie fixe fonctionnant en régime stationnaire —

Partie 2: Fonctions pour le calcul des butées à segments

Reference number
ISO 12131-2:2023(E)

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Published in Switzerland

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 of 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 123, *Plain bearings*, Subcommittee SC 8, *Calculation methods for plain bearings and their applications*.

This third edition cancels and replaces the second edition (ISO 12131-2:2016), which has been technically revised.

The main changes are as follows:

— Formula (1) has been corrected;

— Table 1 has been added;

— some editorial corrections have been made.

A list of all parts in the ISO 12131 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

Assuming hydrodynamic conditions with full lubrication, the functions of the type covered by this document are necessary for the calculation of oil-lubricated pad thrust bearings in accordance with ISO 12131-1. They are based on the premises and boundary conditions specified. The values necessary for the calculation can be determined by means of the given formulae, as well as from diagrams and tables. The formulae in this document are approximations of the numerically determined values traced as curves according to Reference [2]. The explanation of the symbols, as well as examples for the calculation, are included in ISO 12131-1.

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Plain bearings — Hydrodynamic plain thrust pad bearings under steady-state conditions —

Part 2: Functions for the calculation of thrust pad bearings

1 Scope

This document specifies functions for thrust pad bearings. It also covers the effect of dynamic viscosity on lubricant film temperature.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 12131-1:2020, *Plain bearings — Hydrodynamic plain thrust pad bearings under steady-state conditions — Part 1: Calculation of thrust pad bearings*

3 Terms and definitions

No terms and definitions are listed in this document.

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

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

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

4 Symbols, terms and units

Symbols and units are defined in Table 1. Any symbols not listed in Table 1 shall be defined in accordance with ISO 12131-1:2020, Table 1.

Table 1 — Symbols, terms, and units

Symbol	Term	Unit
i (index)	Consecutive number	1
A_1, A_3, A_i, A^*	Auxiliary quantity	1
B_1, B_3, B_i, B^*	Auxiliary quantity	1
C^*	Auxiliary quantity	1
K_1	"Thickness" of oil	Pa·s
K_2	Inherent viscosity-temperature dependence of oil	°C
K_3	Oil temperature for infinite viscosity	°C
VG	ISO Viscosity Grade	1
α	Auxiliary quantity	1
η_x	Constant coefficient	Pa·s

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