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ISO/TC **123**/SC **8**

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Plain bearings — Hydrostatic plain journal bearings with drainage grooves under steady-state conditions —

Part 2:
Characteristic values for the calculation of oil-lubricated plain journal bearings with drainage grooves

Paliers lisses — Paliers lisses radiaux hydrostatiques avec rainures d'écoulement fonctionnant en régime stationnaire —

Partie 2: Caractéristiques du calcul pour la lubrification des paliers lisses radiaux avec rainures d'écoulement

ICS: 21.100.10

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Contents

Page

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 *[or Project Committee]* ISO/TC 123, *Plain bearings*, Subcommittee SC 8, *Calculation methods for plain bearings and their applications*.

This second edition cancels and replaces the first edition (ISO 12167-2:2001), which has been technically revised.

The main changes compared to the previous edition are as follows:

— Adjustment to ISO/IEC Directives, Part 2:2018

— Correction of typographical errors

A list of all parts in the ISO 12167 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.

Plain bearings — Hydrostatic plain journal bearings with drainage grooves under steady-state conditions —

Part 2: Characteristic values for the calculation of oil-lubricated plain journal bearings with drainage grooves

1 Scope

This document lists, in graphic form, characteristic values used in the calculation of oil-lubricated plain journal bearings with drainage grooves.

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 12167-1, *Plain bearings — Hydrostatic plain journal bearings with drainage grooves under steady-state conditions — Part 1: Calculation of oil-lubricated plain journal bearings with drainage grooves*

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 Characteristic values

See Figures 1 to 13 and Table 1.

The characteristic values given in this document are necessary for the calculation of oil-lubricated hydrostatic plain journal bearings in accordance with ISO 12167-1. They are based on the premises and boundary conditions specified therein. The values required for the calculation can be determined from the diagrams. Explanations concerning the symbols and calculation examples are included in ISO 12167-1. When designing a plain bearing the characteristic values listed in Table 1 can be used for optimized bearings.

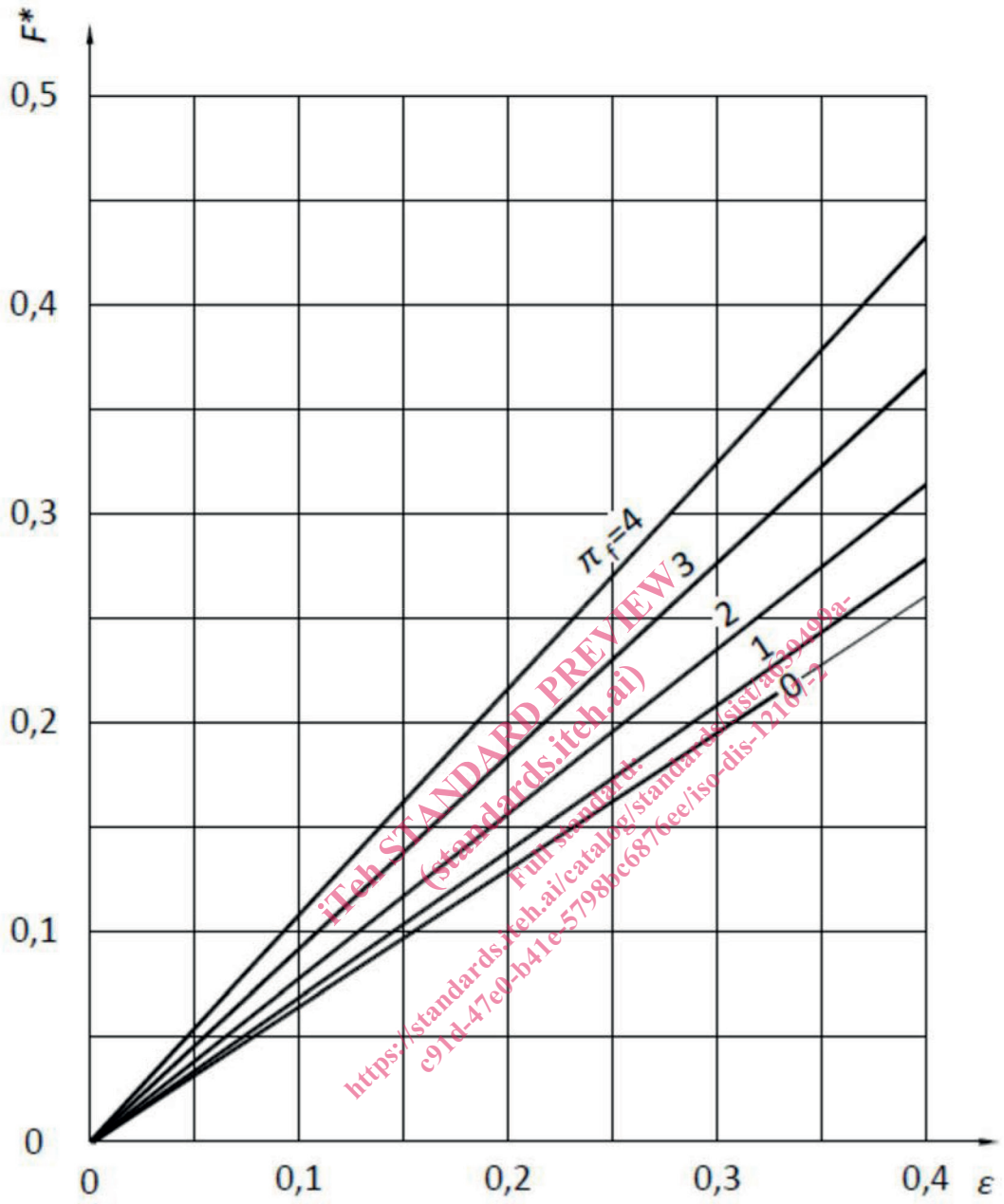

Figure 1 — Characteristic values of load-carrying capacity F^* as a function of the relative eccentricity ε for different relative frictional pressures π_f and $Z = 4$; $B/D = 1$; $l_{ax}/B = 0{,}1$; $l_c/D = 0{,}1$; $b_G/D = 0{,}05$; $\xi = 1$; $\alpha = 0$

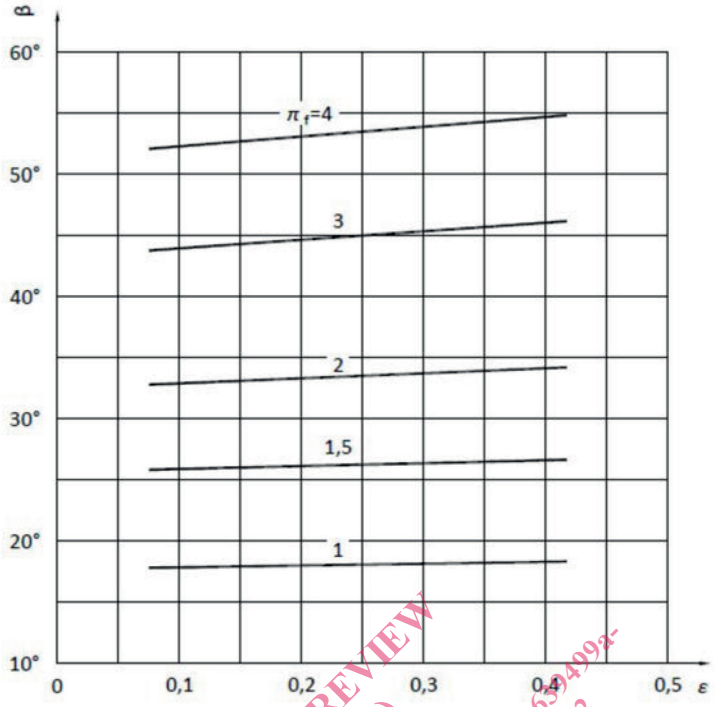

Figure 2 — Attitude angle β as a function of the relative eccentricity ε for different relative frictional pressures π_f and $Z = 4$; $B/D = 1$; $l_{ax}/B = 0{,}1$; $l_c/D = 0{,}1$; $b_G/D = 0{,}05$; $\xi = 1$; $\alpha = 0$

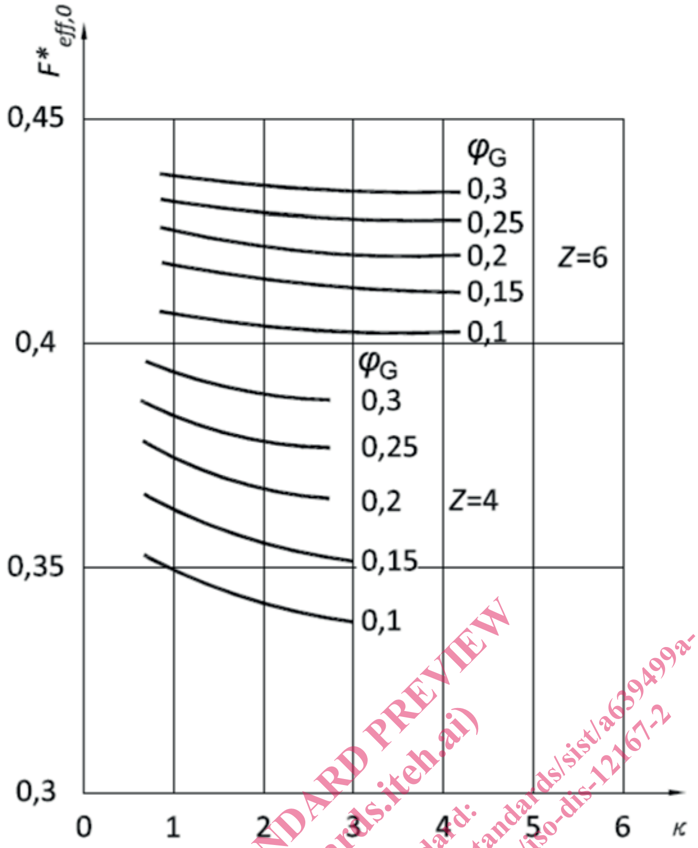

Figure 3 — Characteristic values of load-carrying capacity $F^{*}_{\text{eff},0}$ for a relative eccentricity ε = 0,4 as a function of the resistance ratio κ and for different numbers of recesses Z and jG values, α = 0; ω = 0; ξ = 1

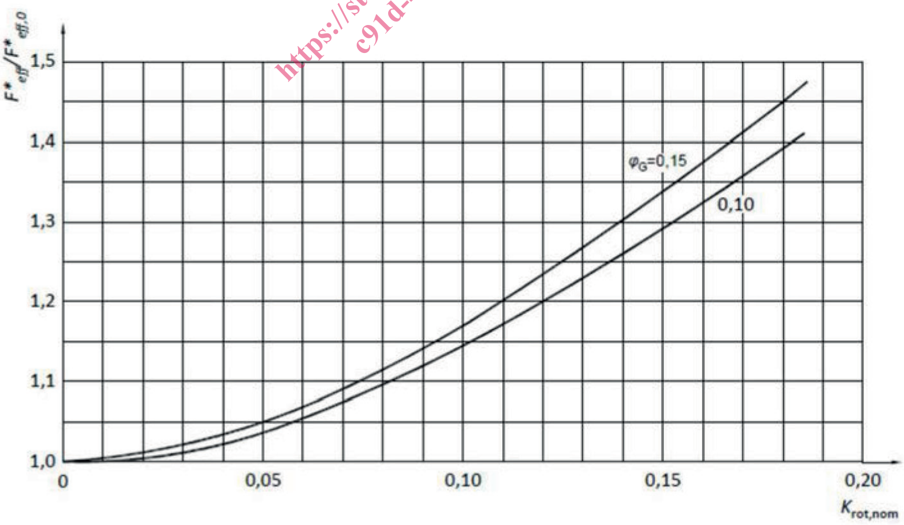

Figure 4 — Ratio of the characteristic values of load-carrying capacity $F^{*}_{\text{eff}} / F^{*}_{\text{eff},0}$ as a function of the speed-dependent parameter $K_{\text{rot, nom}}$ for resistance ratios κ = 1 to 2, Z = 4 and two j_G values, ε = 0,4; ξ = 1; α = 0

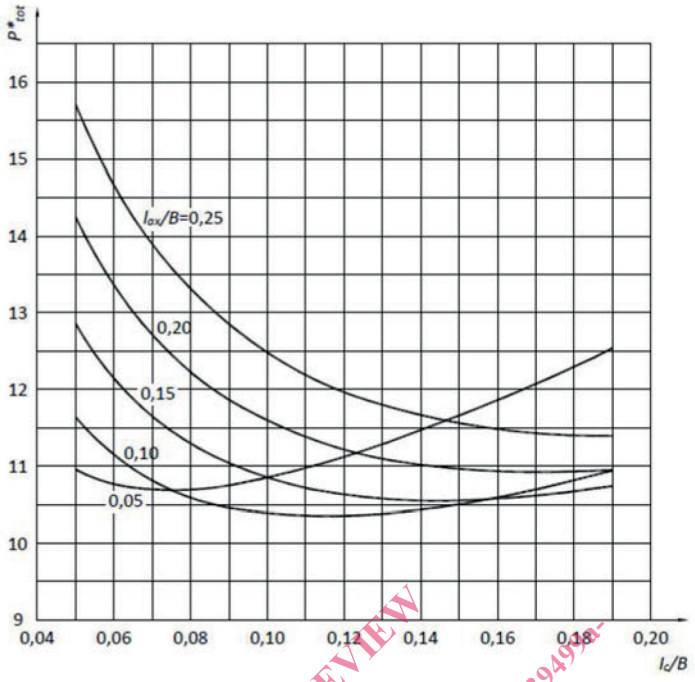

Figure 5 — Characteristic values of total power P^*_{tot} as a function of the relative land widths l_{ax}/B and l_c/B with ε = 0,4; B/D = 1; P^* = 2; Z = 4; ξ = 1; b_G/D = 0,05; h_p = 40 ´ C_R, with friction in the recesses