
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



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

STANDARDSISO.COM : Click to view the full PDF of ISO 12167-2:2001

© ISO 2001

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.ch
Web www.iso.ch

Printed in Switzerland

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 12167 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 12167-2 was prepared by Technical Committee ISO/TC 123, *Plain bearings*, Subcommittee SC 4, *Methods of calculation of plain bearings*.

ISO 12167 consists of the following parts, under the general title *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*
- *Part 2: Characteristic values for the calculation of oil-lubricated plain journal bearings with drainage grooves*

STANDARDSISO.COM : Click to view the full PDF of ISO 12167-2:2001

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 part of ISO 12167 lists, in graphic form, characteristic values used in the calculation of oil-lubricated plain journal bearings with drainage grooves.

2 Normative reference

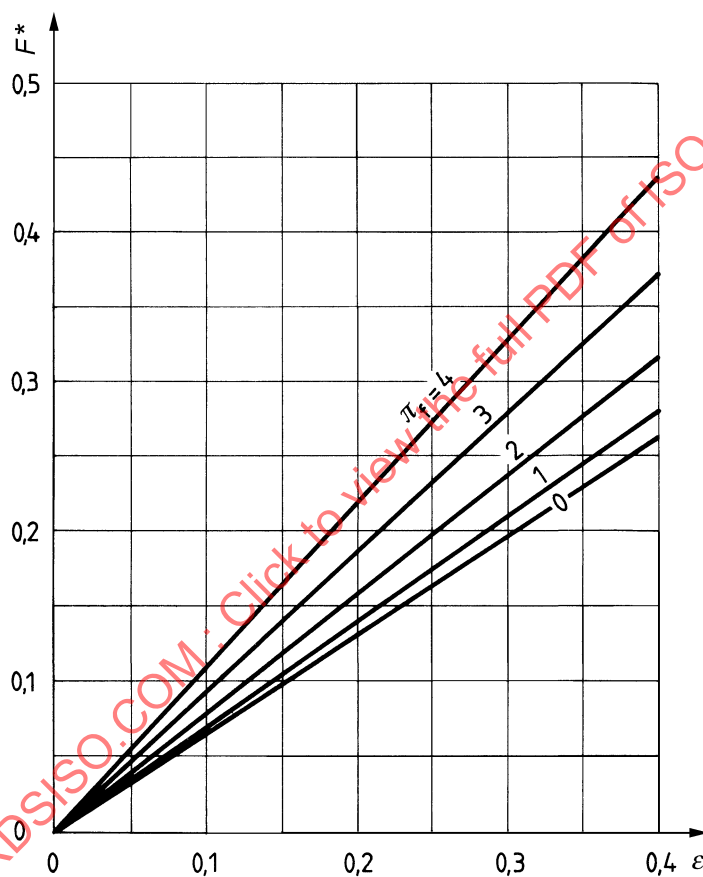
The following normative document contains provisions which, through reference in this text, constitute provisions of this part of ISO 12167. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 12167 are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

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 Characteristic values

See Figures 1 to 13 and Table 1.

The characteristic values given in this part of ISO 12167 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 four recesses,
 $B/D = 1$; $l_{ax}/B = 0,1$; $l_c/D = 0,1$; $b_G/D = 0,05$; $\xi = 1$; $\alpha = 0$**

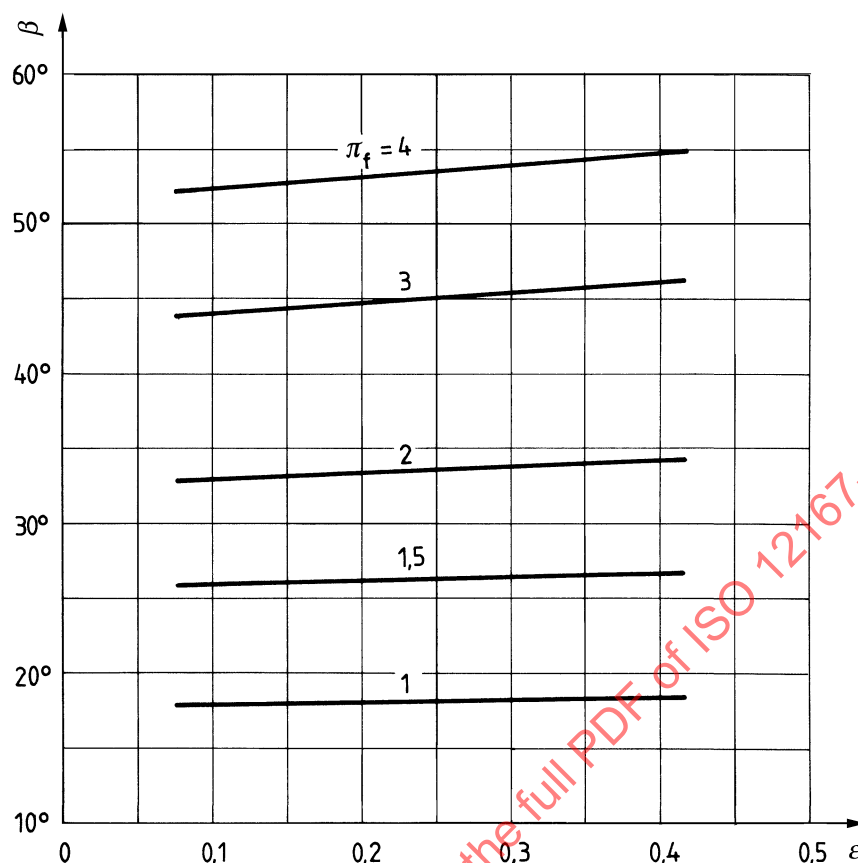


Figure 2 — Attitude angle β as a function of the relative eccentricity ε for different relative frictional pressures π_f and four recesses, $B/D = 1$; $l_{ax}/B = 0,1$; $l_c/D = 0,1$; $b_G/D = 0,05$; $\xi = 1$; $\alpha = 0$

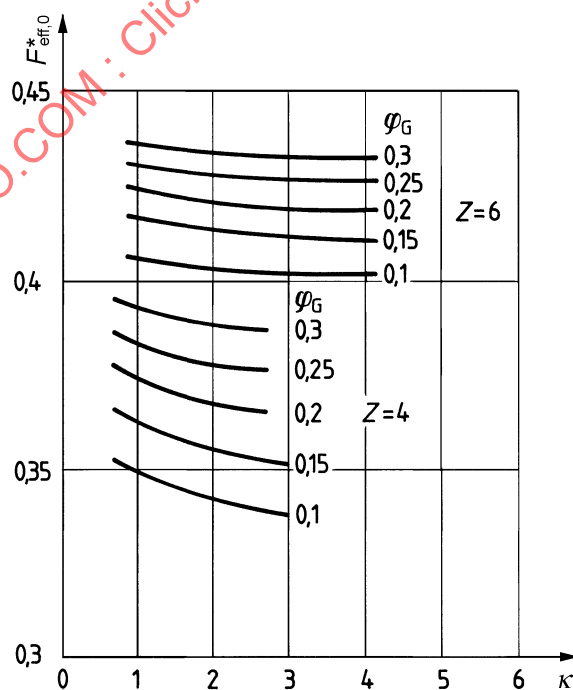


Figure 3 — Characteristic values of load-carrying capacity $F_{eff,0}^*$ for a relative eccentricity $\varepsilon = 0,4$ as a function of the resistance ratio κ and for different numbers of recesses Z and φ_G values, $\alpha = 0$; $\omega = 0$; $\xi = 1$ and four recesses

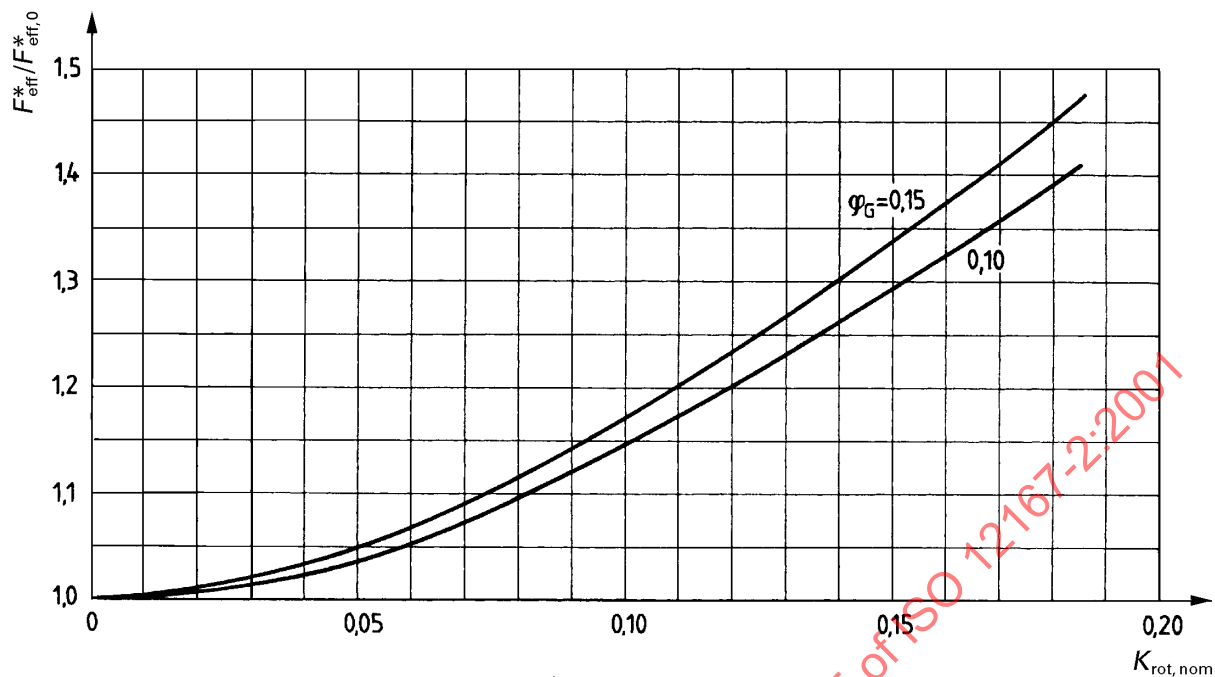


Figure 4 — Ratio of the characteristic values of load-carrying capacity $F_{\text{eff}}^* / F_{\text{eff},0}^*$ as a function of the speed-dependent parameter $K_{\text{rot,nom}}$ for resistance ratios $\kappa = 1$ to 2, four recesses and two φ_G values, $\varepsilon = 0,4$; $\xi = 1$; $\alpha = 0$

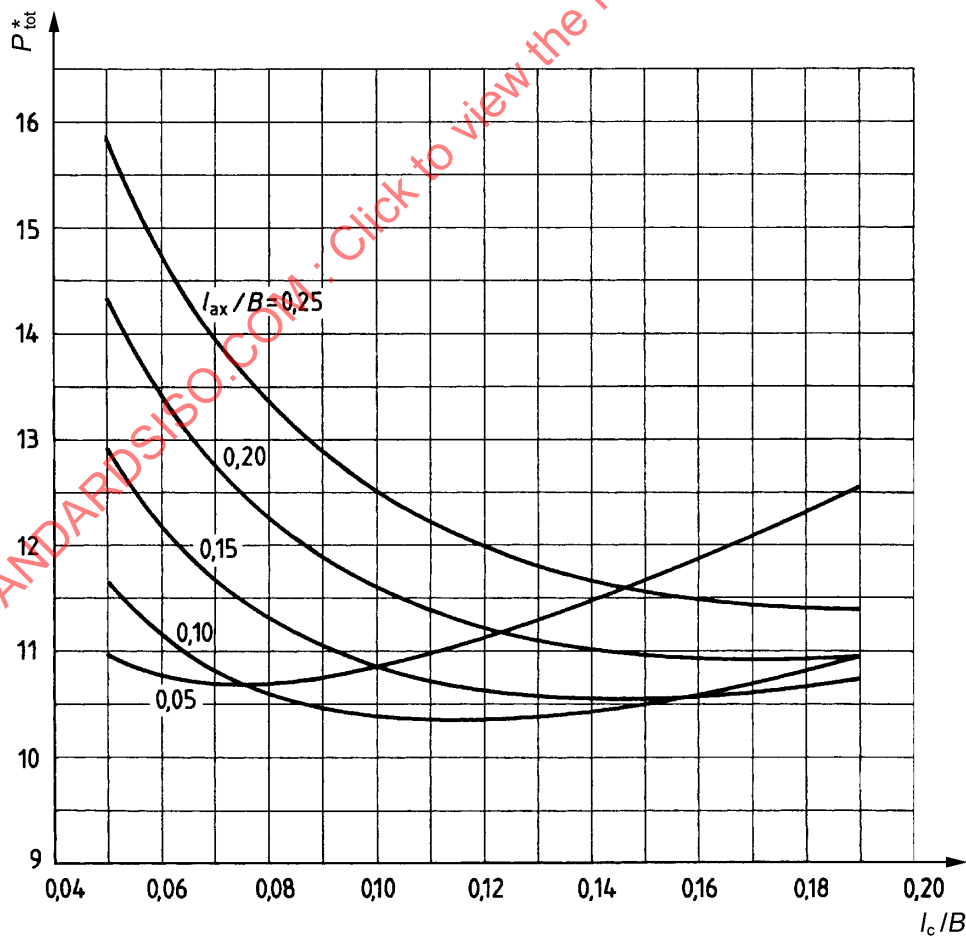


Figure 5 — Characteristic values of total power P_{tot}^* as a function of the relative land widths l_{ax}/B and l_c/B with $\varepsilon = 0,4$; $B/D = 1$; $P^* = 2$; $Z = 4$; $b_G/D = 0,0567$; $h_p = 40 - C_R$, with friction in the recesses

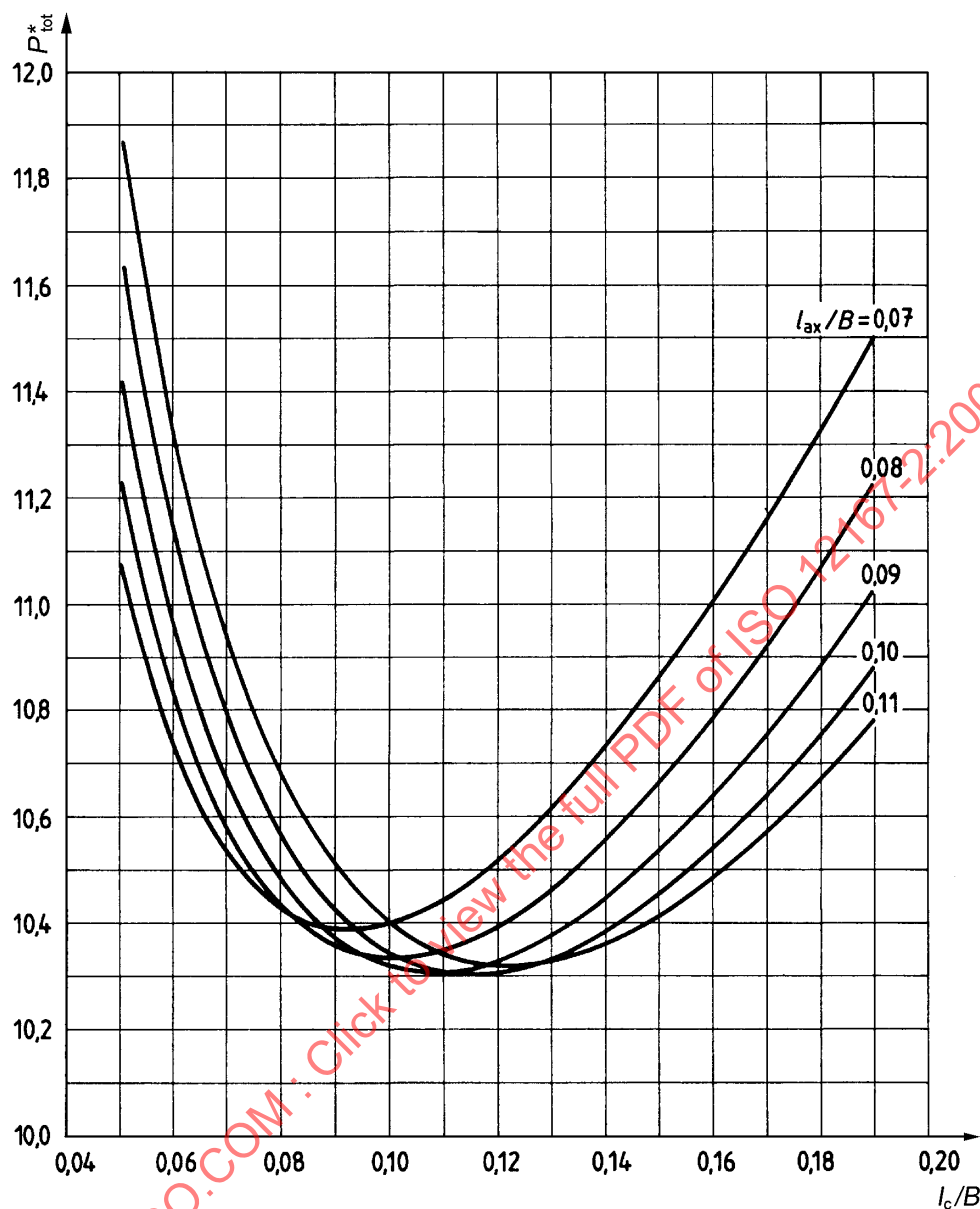


Figure 6 — Characteristic values of total power P_{tot}^* as a function of the relative land widths l_{ax}/B and l_c/B with $\varepsilon = 0.4$; $B/D = 1$; $P^* = 2$; $Z = 4$; $b_G/D = 0.05$; $h_p = 40 - C_R$, with friction in the recesses

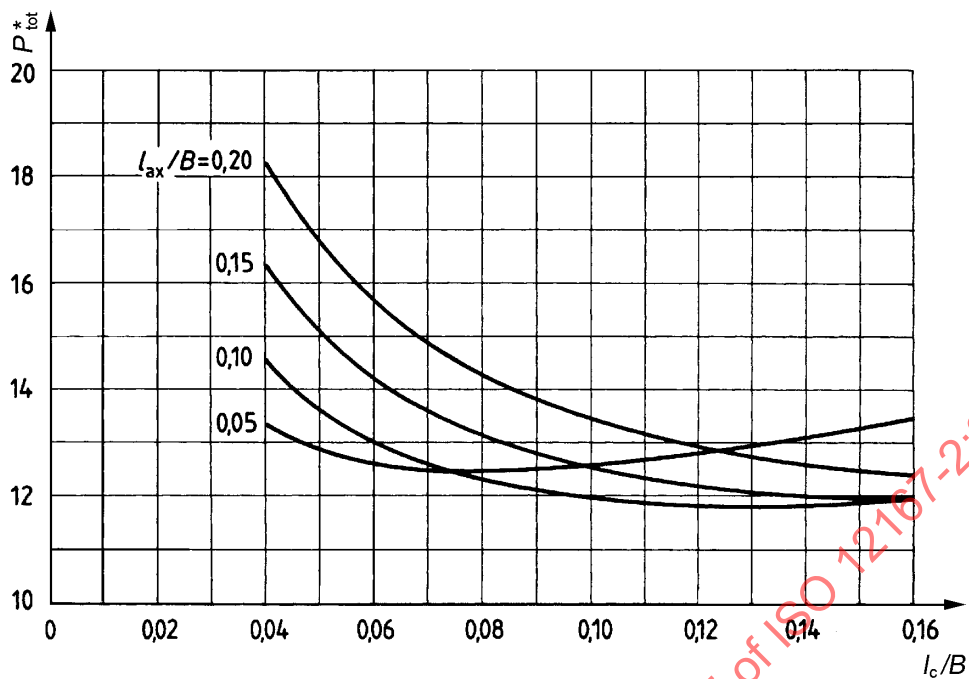


Figure 7 — Characteristic values of total power P_{tot}^* as a function of the relative land widths l_{ax}/B and l_c/B with $\varepsilon = 0,4$; $B/D = 1$; $P^* = 2$; $Z = 6$; $\xi = 1$; $b_G/D = 0,05$; $h_p = 40 - C_R$, with friction in the recesses

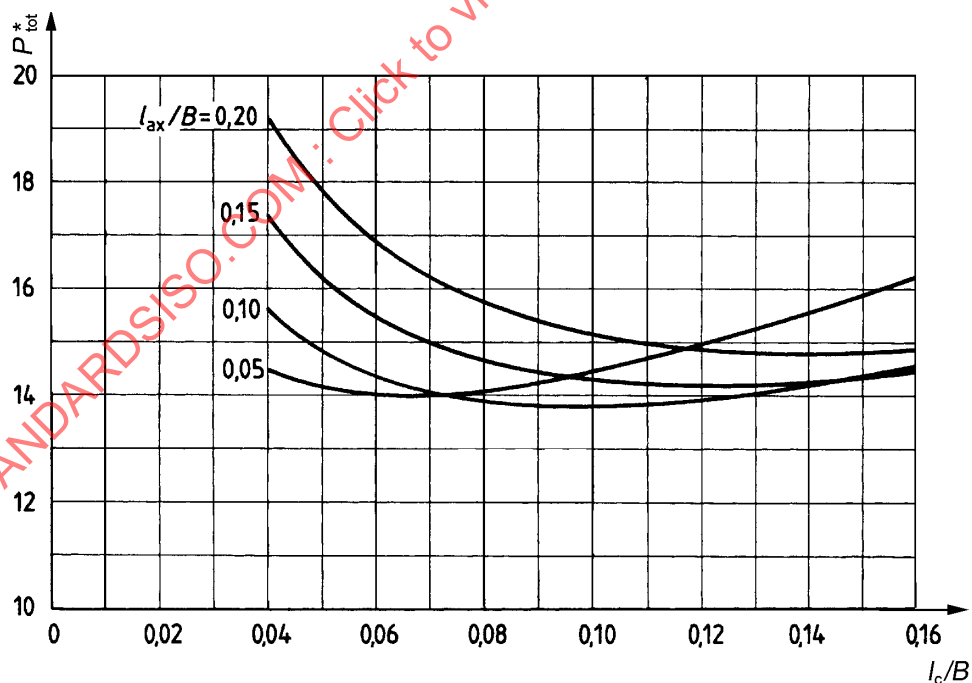


Figure 8 — Characteristic values of total power P_{tot}^* as a function of the relative land widths l_{ax}/B and l_c/B with $\varepsilon = 0,4$; $B/D = 0,75$; $P^* = 2$; $Z = 6$; $\xi = 1$; $b_G/D = 0,05$; $h_p = 40 - C_R$, with friction in the recesses

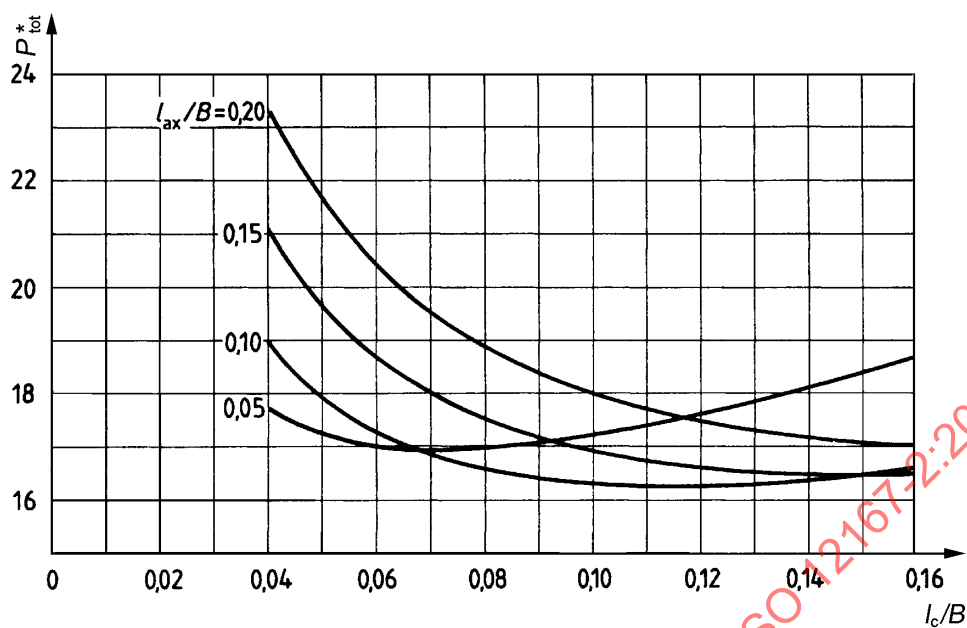


Figure 9 — Characteristic values of total power P_{tot}^* as a function of the relative land widths l_{ax}/B and l_{c}/B with $\varepsilon = 0,4$; $B/D = 0,5$; $P^* = 2$; $Z = 6$; $\xi = 1$; $b_{\text{G}}/D = 0,05$; $h_{\text{p}} = 40 - C_{\text{R}}$, with friction in the recesses

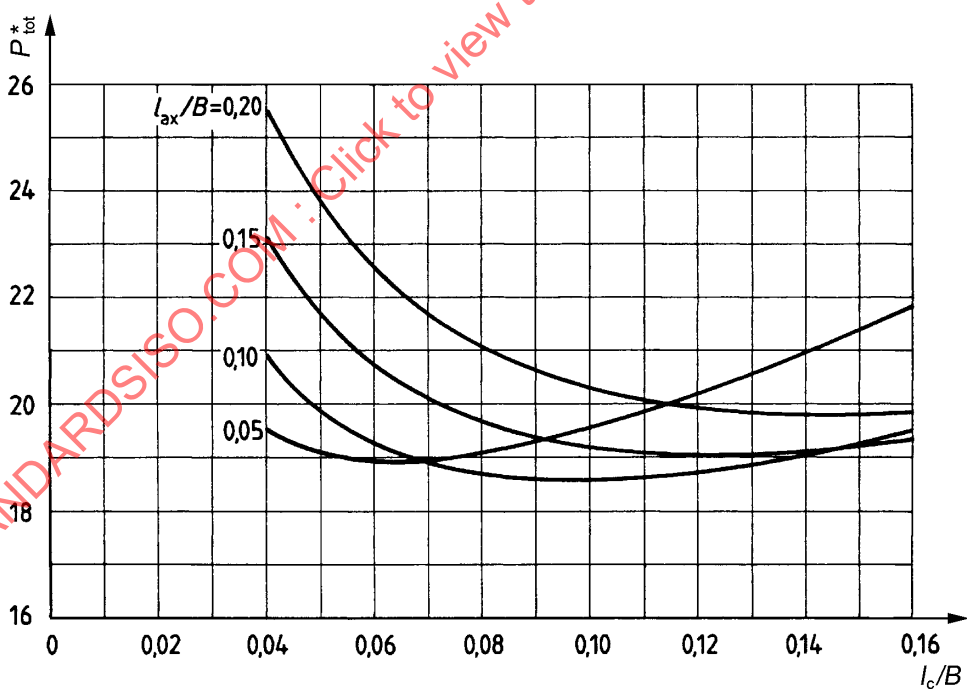


Figure 10 — Characteristic values of total power P_{tot}^* as a function of the relative land widths l_{ax}/B and l_{c}/B with $\varepsilon = 0,4$; $B/D = 0,5$; $P^* = 2$; $Z = 8$; $\xi = 1$; $b_{\text{G}}/D = 0,05$; $h_{\text{p}} = 40 - C_{\text{R}}$, with friction in the recesses