TECHNICAL SPECIFICATION

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Plain bearings — Hydrodynamic plain journal bearings under steady-state conditions —

Part 3:
Functions for calculation of tilting pad journal bearings

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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 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*.

A list of all parts in the ISO/TS 31657 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 — Hydrodynamic plain journal bearings under steady-state conditions —

Part 3: Functions for calculation of tilting pad journal bearings

1 Scope

This document specifies the characteristic values for selected tilting-pad journal bearings with four or five centrally or eccentrically supported tilting pads and with angular spans of pad sliding surfaces of Ω = 80°, 60° and 45°.

The functions plotted and listed in table form below are required for the operationally safe design of hydrodynamic tilting-pad journal bearings according to ISO/TS 31657-1. They are based on the presumptions and boundary conditions indicated there and only apply to stationary operating states. The symbols used are explained in ISO/TS 31657-1; calculation examples are also included there.

The calculation method described in ISO/TS 31657-1 can also be used for other tilting-pad journal bearing designs, if the numerical solutions of the basic equations are available in the same manner for these designs.

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 Functions for calculation of multi-lobed journal bearings

4.1 General

The characteristic values for symmetrically loaded tilting-pad journal bearings with four and five centrally (relative angular distance between leading edge and pivot position of pad Ω_F^* = 0,5) or eccentrically (Ω_F^* = 0,6) supported tilting pads are indicated below in table form.

The characteristic values were calculated for the geometrical parameters summarised in Figure 1 (angular spans of pad sliding surface Ω, angular coordinates of pivot position of pad $\varphi_{F,1}$, profile factors