
**Hydrodynamic plain journal bearings under
steady-state conditions — Circular
cylindrical bearings —**

Part 2:

Functions used in the calculation procedure

*Paliers lisses hydrodynamiques radiaux fonctionnant en régime stabilisé —
Paliers circulaires cylindriques —*

Partie 2: Fonctions utilisées pour le calcul



Foreword

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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.

International Standard ISO 7902-2 was prepared by Technical Committees ISO/TC 123, *Plain bearings*, Subcommittee SC 4, *Methods of calculation of plain bearings*.

ISO 7902 consists of the following parts, under the general title *Hydrodynamic plain journal bearings under steady-state conditions — Circular cylindrical bearings*:

- *Part 1: Calculation procedure*
- *Part 2: Functions used in the calculation procedure*
- *Part 3: Permissible operational parameters*

Annex A of this part of ISO 7902 is for information only.

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Printed in Switzerland

Hydrodynamic plain journal bearings under steady-state conditions — Circular cylindrical bearings —

Part 2:

Functions used in the calculation procedure

1 Scope

This part of ISO 7902 specifies the values of the basic functions used in the calculation procedure for oil-lubricated circular cylindrical hydrodynamic bearings under conditions of full lubrication.

The values are given for the assumptions and boundary conditions given in ISO 7902-1. The values necessary for the calculation may be determined from the tables of bearing characteristics, the graphs and from the equations.

The descriptions of the symbols used and calculation examples are given in ISO 7902-1.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 7902. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 7902 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 3448:1992, *Industrial liquid lubricants — ISO viscosity classification*.

ISO 7902-1:1998, *Hydrodynamic plain journal bearings under steady-state conditions — Circular cylindrical bearings — Part 1: Calculation procedure*.

3 Tables of basic bearing characteristics

Tables 1 to 30 give

- the attitude angle, β ,
- The Sommerfeld number, S_o ,
- the specific coefficient of friction, taking account of the unloaded area of lubricant film, f'/ψ ,
- the specific coefficient of friction in the loaded area of the lubricant film, f/ψ ,
- The coefficient of lubricant flow rate, parameter Q_3^* , due to generation of the internal pressure, as a function of angular span, Ω , relative eccentricity ε and relative bearing width B/D ,

for various values of ε , Ω and B/D .