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

Part 3:
Permissible operational parameters

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

Partie 3: Paramètres opérationnels admissibles



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 7902-3 was prepared by Technical Committee 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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Introduction

In order to attain sufficient operational reliability of circular cylindrical plain journal bearings when calculated in accordance with ISO 7902-1, it is essential that the calculated operational parameters h_{\min} , T_B or T_{ex} and \bar{p} do not lie above or below the permissible operational parameters h_{lim} , T_{lim} and \bar{p}_{lim} . The permissible parameters represent geometrically and technologically dependent operational limits within the plain bearing tribological system. They are empirical values which still enable sufficient operational reliability even for minor influences (see ISO 7902-1).

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1 Scope

This part of ISO 7902 specifies empirical permissible values for h_{lim} , T_{lim} and \bar{p}_{lim} .

The empirical values stated can be modified for certain applications, for example if information supplied by the manufacturer is to be taken into account. The descriptions of the symbols and calculation examples are given in ISO 7902-1.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this part of ISO 7902. At the time of publication, the edition indicated was 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 edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

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

3 Operational parameters to avoid wear

3.1 The aim of keeping above the minimum permissible lubrication film thickness h_{lim} is to retain complete lubrication of the plain bearing in order to attain least possible wear and low susceptibility to faults. The lubricant should be free of contaminating particles, otherwise increased wear, scoring and local overheating can result, thus impairing correct functioning of the plain bearing. If necessary, appropriate filtering of the lubricant should be provided for.

3.2 The minimum permissible lubrication film thickness h_{lim} , as a characteristic parameter for the transition to mixed friction (see ISO 7902-1:1998, 6.6), can be determined from the following equation:

$$h_{lim} = Rz_B + Rz_J + \frac{1}{2}By + \frac{1}{2}y + h_{wav,eff} \quad \dots (1)$$