
**Foil bearings — Guidelines for testing
of the performance of foil journal
bearings — Testing of load capacity,
friction coefficient and lifetime**

*Paliers-feuilles — Lignes directrices pour les essais de performance
des paliers radiaux à feuilles non lubrifiés — Essais de la capacité de
charge, du coefficient de friction et de la durée de vie*



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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.org
Web www.iso.org

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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.

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Introduction

Foil bearing is a special type of plain bearing; at the time of publication of this International Standard, no International Standards on foil bearings exist. This International Standard is an attempt to elaborate a test method for the basic performance of a foil bearing.

Foil bearings — Guidelines for testing of the performance of foil journal bearings — Testing of load capacity, friction coefficient and lifetime

1 Scope

This International Standard describes a method of comparing the performance test results of foil journal bearings, which are lubricated by air (gas) and supported by hydrodynamic force generated by the rotation of the rotating shaft. The test procedure proposed in this International Standard aims to predict and evaluate the static load capacity, friction coefficient and lifetime of the foil journal bearing, and compare the results with those occurring under different test conditions, i.e. dimensions of a foil bearing, rotational speed of a shaft, pressure and humidity of surroundings and so on. The magnitude of the static load capacity can change according to the test setting, as the test conditions can be changed.

The test method described in this International Standard has the following application coverage:

- a) the criterion of the static load capacity is the steady-state, i.e. it is applied in a limited operating condition with a uniform magnitude, load direction and rotational speed;
- b) the evaluation procedure can be applied only if the foil journal bearing is under a uniform rotating inertia at an arbitrary rotational speed;
- c) the dynamic load with a time-variant magnitude and direction is not taken into consideration;
- d) for the purposes of this International Standard (these guidelines), the configuration of a typical foil journal bearing is presented in Annex A.

2 Symbols

For the purposes of this document, the following symbols apply.