BS ISO 13939:2012

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

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National foreword

This British Standard is the UK implementation of ISO 13939:2012.

The UK participation in its preparation was entrusted to Technical Committee MCE/12, Plain bearings.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Published by BSI Standards Limited 2013.

ISBN 978 0 580 75458 6

ICS 21.100.10

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 January 2013.

Amendments issued since publication

Amd. No.	Date	Text affected

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INTERNATIONAL STANDARD

ISO 13939

First edition
2012-08-01

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

Reference number
ISO 13939:2012(E)

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Published in Switzerland

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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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The main task of technical committees is to prepare International Standards. 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 document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 13939 was prepared by Technical Committee ISO/TC 123, *Plain bearings*, Subcommittee SC 7, *Special types of plain bearings*.

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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.

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INTERNATIONAL STANDARD ISO 13939:2012(E)

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.

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