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BS ISO 13939:2012



BSI Standards Publication

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

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Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
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Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Symbols	1
2.1 Basic characters — Roman alphabet	2
2.2 Basic characters — Greek alphabet	2
2.3 Additional signs — Subscripts	2
2.4 Additional signs — Superscript (shown on X)	3
3 Purpose of test	3
4 Test conditions	3
4.1 General	3
4.2 Design of test facility	3
4.3 Installation of sensors	3
4.4 Calculation of bearing torque and loads	5
4.5 Test specimens	5
5 Test methods	6
5.1 Principle	6
5.2 Start-stop test cycle and evaluation of the take-off speed	6
5.3 Evaluation of static load capacity	7
5.4 Calculation of non-dimensional static load capacity	8
5.5 Coefficient of bearing load capacity	8
6 Clearance and eccentricity ratio	8
7 Friction coefficient	9
8 Durability test and lifetime	10
8.1 Test procedure	10
8.2 Determination of lifetime	10
9 Test report	10
Annex A (normative) The configuration of a typical foil journal bearing	12
Annex B (informative) Test report	14
Bibliography	16

This is a preview of "BS ISO 13939:2012". [Click here to purchase the full version from the ANSI store.](#)

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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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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.