



BSI Standards Publication

Foil bearings — Performance testing of foil thrust bearings — Testing of static load capacity, bearing torque, friction coefficient and lifetime

National foreword

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

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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

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Foreword

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

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Introduction

Design improvements commonly required for rotating machines such as turbines, generators, compressors and pumps include increases in speed and decreases in size. Foil bearings in turbomachinery operate by generating a self-acting air (or gas) film between surfaces in relative motion. A gap between a rotating shaft or runner and a foil surface compresses a gaseous lubricant to an elevated pressure, separating the relatively moving surfaces and providing a load-carrying capacity. The use of the surrounding air (or gas) as the bearing lubricant eliminates the need for an auxiliary lubrication system to deliver conventional oil lubricants. This permits drastic reductions in the weight, complexity and maintenance costs of foil bearing-supported turbomachines, in comparison to their rolling bearing-supported counterparts. It also permits higher shaft speeds by removing the $n \times d_m$ speed limits (where d_m is the mean diameter of bearing and n is the rotation rate) on rolling bearings.