



BSI Standards Publication

Spherical plain bearings — Derivation of the load rating factors

National foreword

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**Spherical plain bearings — Derivation
of the load rating factors**

Rotules lisses — Explication sur le calcul des charges de base



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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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This document was prepared by Technical Committee ISO/TC 4, *Rolling bearings*, Subcommittee SC 8, *Load ratings and life*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Different calculating methods for static and dynamic load ratings of spherical plain bearings have been used in different countries, thus making it difficult to compare different solutions. A unified method for the calculation of static and dynamic load ratings has been standardized in ISO 20015.

ISO 20015 leaves the load rating factors to the manufacturers to determine because they are dependent on design and material. Bearing manufacturers don't have unified methods to determine these factors themselves. This document gives the supplementary background information regarding the derivation of factors in ISO 20015.

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Spherical plain bearings — Derivation of the load rating factors

1 Scope

This document gives supplementary background information regarding the derivation of factors given in ISO 20015.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

4 Symbols

A	contact area on bearing sliding surface, in square millimetres (mm ²)
B	inner ring width, in millimetres (mm)
C	outer ring width, in millimetres (mm)
\bar{c}	effective width of distribution of contact load, in millimetres (mm)
$\bar{c}(\theta)$	effective width of distribution of contact load function versus θ , in millimetres (mm)
C_a	dynamic axial load rating, in newtons (N)
C_r	dynamic radial load rating, in newtons (N)
C_{0a}	static axial load rating, in newtons (N)
C_0	static radial load rating, in newtons (N)
d	bore diameter, in millimetres (mm)
d_k	sphere diameter, in millimetres (mm)
D_{S1}	smallest diameter of sliding contact surface of the outer ring, in millimetres (mm)
D_{S2}	largest diameter of sliding contact surface of the outer ring, in millimetres (mm)
F_a	axial load, in newtons (N)