American Bearing Manufacturers Association

ANSI/ABMA/ISO 12240-1:2021
(Identical Adopted to ISO 12240-1:1998)

American National Standard

Rolling Bearing — Spherical Plain Bearings Part 1: Radial Spherical Plain Bearings

ANSI/ABMA/ISO 12240-1:2021

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INTERNATIONAL STANDARD

ISO 12240-1

First edition
1998-08-15

Spherical plain bearings —

Part 1:
Radial spherical plain bearings

Rotules lisses —

Partie 1: Rotules lisses radiales

Reference number
ISO 12240-1:1998(E)

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standard 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.

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.

International Standard ISO 12240-1 was prepared by Technical Committee ISO/TC 4, *Rolling bearings*, Subcommittee SC 7, *Spherical plain bearings*.

This first edition cancels and replaces ISO 6124-1:1987, ISO 6124-2:1982, ISO 6124-3:1982 and ISO 6125:1982 of which it constitutes a technical revision.

ISO 12240 consists of the following parts, under the general title *Spherical plain bearings*:

— *Part 1: Radial spherical plain bearings*

— *Part 2: Angular contact radial spherical plain bearings*

— *Part 3: Thrust spherical plain bearings*

— *Part 4: Spherical plain bearing rod ends*

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Spherical plain bearings —

Part 1:
Radial spherical plain bearings

1 Scope

This part of ISO 12240 specifies dimension series, tolerances and radial internal clearances for radial spherical plain bearings.

The dimensions and tolerances specified in this part of ISO 12240 have been selected to permit the design of radial spherical plain bearings using a wide choice of sliding material combinations.

The specified tolerance values apply to finished, radial spherical plain bearings before any coating, plating, ring splitting or ring fracturing.

In the case of surface treated radial spherical plain bearings, there may be slight deviations from the specified tolerance values.

Radial spherical plain bearings need not conform to the designs illustrated but compliance is required as regards the dimensions, tolerances and radial internal clearances specified.

NOTE — Spherical plain bearings for airframe applications are not covered by this part of ISO 12240.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 12240. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 12240 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 582:1995, *Rolling bearings – Chamfer dimensions – Maximum values*.

ISO 1132-1: —[1)], *Rolling bearings – Tolerances – Part 1: Terms and definitions*.

ISO 6811:1998, *Spherical plain bearings – Vocabulary*.

ISO 12240-4:1998, *Spherical plain bearings – Part 4: Spherical plain bearing rod ends*.

1) To be published. (Revision of ISO 1132:1980)

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3 Definitions and symbols

For the purposes of this part of ISO 12240, the definitions given in ISO 1132-1 and ISO 6811 apply. The symbols (except those for tolerances) shown in the figures and the values given in the tables denote nominal dimensions unless specified otherwise.

B	Inner ring width
C	Outer ring width
D	Outside diameter
d	Bore diameter
d_1	Outside diameter of inner ring face
d_k	Sphere diameter
$r_{s\ min}$[2)]	Smallest single chamfer dimension, inner ring
$r_{1s\ min}$[2)]	Smallest single chamfer dimension, outer ring
V_{Dmp}	Variation of mean outside diameter
V_{dmp}	Variation of mean bore diameter
V_{Dp}	Variation of outside diameter in a single radial plane
V_{dp}	Variation of bore diameter in a single radial plane
α	Angle of tilt
Δ_{Bs}	Deviation of a single inner ring width
Δ_{Cs}	Deviation of a single outer ring width
Δ_{Dmp}	Deviation of mean outside diameter in a single plane
Δ_{dmp}	Deviation of mean bore diameter in a single plane

4 Angles of tilt, α

The specified angles of tilt (approximate values) represent the angles by which the axes of the inner ring and of the outer ring may be inclined in relation to each other without reducing the projected theoretical contact area of the two bearing rings when the two ring axes are parallel to each other.

NOTE — Attention is drawn to the fact that after mounting a radial spherical plain bearing on a shaft and into a housing, the angle through which the bearing can tilt may be restricted by the design of the adjacent components.

2) The corresponding maximum chamfer dimensions are given in table 1 of ISO 582:1985.

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5 Dimensions, tolerances and radial internal clearances

5.1 Dimensions

See figures 1 and 2, and tables 1 to 6.

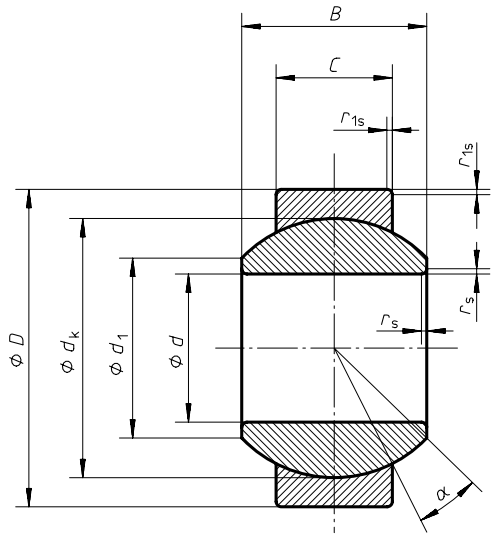

Figure 1 — Radial spherical plain bearings, dimension series E, G, C, K, H

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