

Copyright (c) American Bearing Manufacturers Association, Inc.

This reproduction made under license agreement by Information Handling Services Inc. No further reproduction or transmission is permitted, nor may this material be made part of a network-accessible system, without permission of the copyright owner.

These materials have been prepared by the American Bearing Manufacturers Association. However, the information contained in these materials has not been independently verified by the American Bearing Manufacturers Association or Information Handling Services Inc. Neither organization warrants or assumes any liability for the accuracy or completeness of these materials.

AMERICAN NATIONAL STANDARD

ABMA Standard

ISO Standard

Spherical plain bearings – Part 2: Angular contact radial spherical plain bearings

Secretariat

American Bearing Manufacturers Association

Approved November 5, 1999



1200 19th Street, NW

Suite 300

Washington, DC 20036-2422

202-429-5155

202-223-4579 fax

E-mail: abma@dc.sba.com

Web site: www.abma-dc.org

BEST HARDCOPY
AVAILABLE

American National Standard

Approval of an American National Standard requires verification by ANSI that the requirements for due process, consensus, and other criteria for approval have been met by the standards developer.

Consensus is established when, in the judgment of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made toward their resolution.

The use of American National Standards is completely voluntary; their existence does not in any respect preclude anyone, whether he has approved the standards or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standards.

The American National Standards Institute does not develop standards and will in no circumstances give an interpretation of any American National Standard. Moreover, no person shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute. Requests for interpretations should be addressed to the secretariat or sponsor whose name appears on the title page of this standard.

CAUTION NOTICE: This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken periodically to reaffirm, revise, or withdraw this standard. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.

Published by

American Bearing Manufacturers Association
1200 19th Street, NW, Washington, DC 20036-2422

Copyright © 1999 by American Bearing Manufacturers Association
All rights reserved.

No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without prior written permission of the publisher.

Printed in the United States of America

Spherical plain bearings – Part 2: Angular contact radial spherical plain bearings

Secretariat
American Bearing Manufacturers Association

Approved November 5, 1999
American National Standards Institute, Inc.

Foreword

(This foreword is not part of ANSI/ABMA/ISO 12240-2:1998.)

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized 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.

Draft International Standards adopted by the technical committee are circulated to member bodies for voting. Publication as an International Standard requires approval of at least 75% of the member bodies casting a vote.

International Standard 12240-2 was prepared by Technical Committee ISO/TC 4, *Rolling bearings*, Subcommittee 7, *Spherical plain bearings*.

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*

This standard was processed and approved for submittal to ANSI by Accredited Standards Committee B3 on Ball and Roller Bearings. Committee approval of this standard does not necessarily imply that all committee members voted for its approval.

Suggestions for the improvement of this standard gained through experience with its use will be welcomed. These should be sent to: American Bearing Manufacturers Association, Secretariat, ANSI ASC B3, 1200 19th Street, NW, Suite 300, Washington DC 20036-2422.

Spherical plain bearings —

Part 2:

Angular contact radial spherical plain bearings

1 Scope

This part of ISO 12240 specifies dimensions and tolerances for angular contact radial spherical plain bearings.

The specified tolerance values apply to finished, angular contact radial spherical plain bearings before any coating or plating.

Angular contact radial spherical plain bearings need not conform to the design illustrated but compliance is required as regards dimensions and tolerances specified.

NOTE — Angular contact radial 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.*

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 figure 1 and the values given in the tables denote nominal dimensions unless specified otherwise.

<i>B</i>	Inner ring width
<i>C</i>	Outer ring width
<i>D</i>	Outside diameter
<i>D₁</i>	Bore diameter of outer ring

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

d	Bore diameter
d_1	Outside diameter of inner ring
d_k	Sphere diameter
$r_{s \min 2)}$	Smallest single chamfer dimension, inner ring
$r_{1s \min 2)}$	Smallest single chamfer dimension, outer ring
s	Distance between sphere diameter centre and inner ring back face
T	Bearing width
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
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
Δ_{Ts}	Deviation of the actual bearing width

4 Dimensions and tolerances

4.1 Dimensions

See figure 1 and table 1.

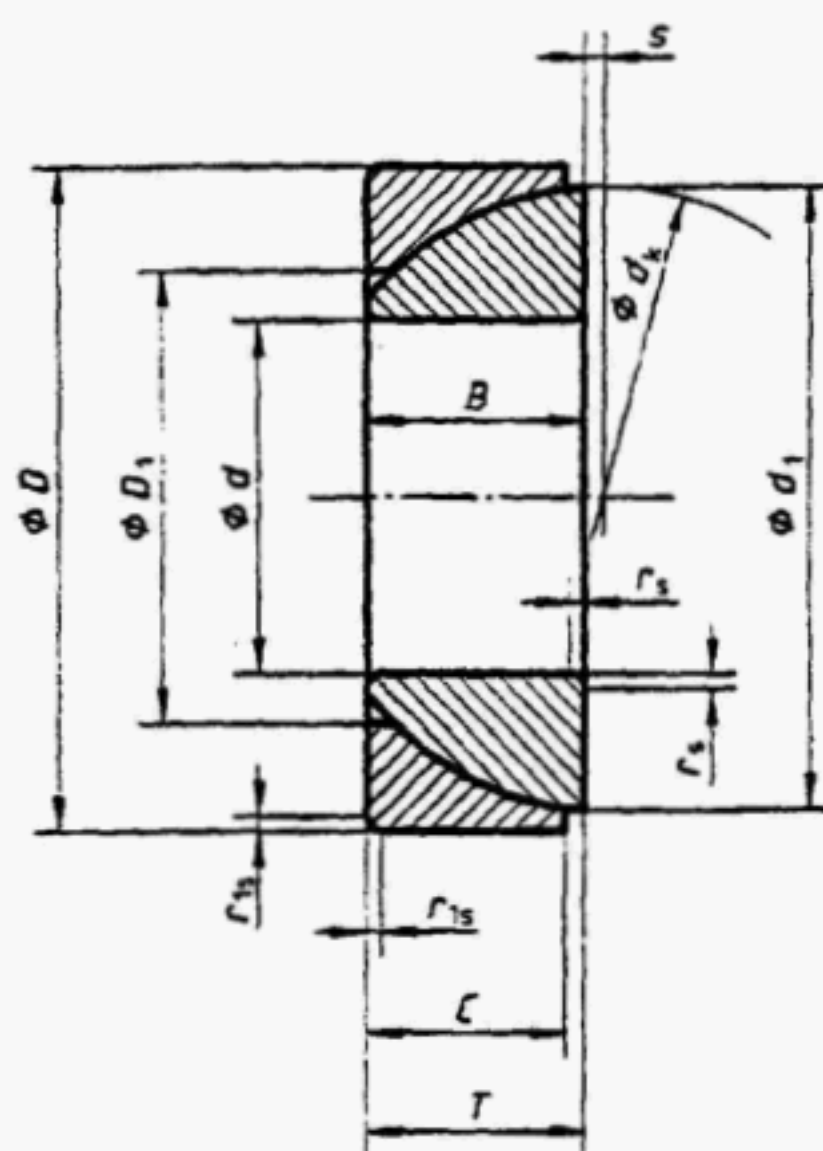


Figure 1 — Angular contact radial spherical plain bearing, dimension series A

2) The corresponding maximum chamfer dimensions are given in table 1 of ISO 582:1995.

Table 1 — Dimensions for angular contact radial spherical plain bearings, dimension series A

Dimensions in millimetres

d	D	B max.	C max.	T	d_k 1)	d_1 =	D_1 max.	s =	r_s, r_{1s} min.
25	47	15	14	15	42	41,5	32	1	0,6
28	52	16	15	16	47	46,5	36	1	1
30	55	17	16	17	50	49,5	37	2	1
32	58	17	16	17	52	51,5	40	2	1
35	62	18	17	18	56	55,5	43	2	1
40	68	19	18	19	61	60,5	48	2	1
45	75	20	19	20	67	66,5	54	3	1
50	80	20	19	20	74	73,5	60	4	1
55	90	23	22	23	81	80	63	5	1,5
60	95	23	22	23	87	86	69	5	1,5
65	100	23	22	23	93	92	77	6	1,5
70	110	25	24	25	102	101	83	7	1,5
75	115	25	24	25	106	105	87	7	1,5
80	125	29	27	29	115	113,5	92	9	1,5
85	130	29	27	29	121	119	98	10	1,5
90	140	32	30	32	129	127	104	11	2
95	145	32	30	32	133	131,5	109	9	2
100	150	32	31	32	141	138,5	115	12	2
105	160	35	33	35	149	146,5	120	13	2,5
110	170	38	36	38	158	155	127	14	2,5
120	180	38	37	38	169	165	137	16	2,5
130	200	45	43	45	188	184	149	18	2,5
140	210	45	43	45	198	194	162	19	2,5
150	225	48	46	48	211	207	172	20	3
160	240	51	49	51	225	221	183	20	3
170	260	57	55	57	246	242	195	21	3
180	280	64	61	64	260	256	207	21	3
190	290	64	62	64	275	270	213	26	3
200	310	70	66	70	290	285	230	26	3

1) Reference only.

4.2 Tolerances

See tables 2 and 3.

Table 2 — Tolerances for inner ring and bearing width

d mm		Δ_{dmp} μm		V_{dp} μm max.	V_{dmp} μm max.	Δ_{Bs} μm		Δ_{Ts} μm	
over	including	high	low			high	low	high	low
—	50	0	— 12	12	9	0	— 240	+250	— 400
50	80	0	— 15	15	11	0	— 300	+250	— 500
80	120	0	— 20	20	15	0	— 400	+250	— 600
120	180	0	— 25	25	19	0	— 500	+350	— 700
180	200	0	— 30	30	23	0	— 600	+350	— 800

Table 3 — Tolerances for outer ring

D mm		Δ_{Dmp} μm		V_{Dp} μm max.	V_{Dmp} μm max.	Δ_{Cs} μm	
over	including	high	low			high	low
—	50	0	— 14	14	11	0	— 240
50	80	0	— 16	16	12	0	— 300
80	120	0	— 18	18	14	0	— 400
120	150	0	— 20	20	15	0	— 500
150	180	0	— 25	25	19	0	— 500
180	250	0	— 30	30	23	0	— 600
250	315	0	— 35	35	26	0	— 700

0871073 0001638 01T

ICS 21.100.10

Descriptors: bearings, plain bearings, spherical bearings, radial bearings, form specifications, dimensions, dimensional tolerances.

Price based on 4 pages
