This is a preview of "ANSI/ABMA-15:1991(R1...". Click here to purchase the full version from the ANSI store.

AMERICAN NATIONAL STANDARD
ANSI/AFBMA
Std. 15-1991

AMERICAN NATIONAL STANDARD
AFBMA STANDARD

BALL BEARINGS WITH SPHERICAL OUTSIDE SURFACES AND EXTENDED INNER RING WIDTH (INCLUDES ECCENTRIC LOCKING COLLARS)

REAFFIRMED

FEB 23 1998

ABMA

Sponsor
The Anti-Friction Bearing
Manufacturers Association, Inc.

Approved February 1, 1991
American National Standards Institute, Inc.

Copyright© American Bearing Manufacturers Association, Inc. This reproduction made under license agreement by CSSinfo, (734) 930-9277. No part of the printed publication, nor any part of the electronic file may be reproduced or transmitted in any form, including transmittal by e-mail, by file transfer protocol (FTP), or by being made part of a network-accessible system, without the prior written permission of the copyright owner.

This is a preview of "ANSI/ABMA-15:1991(R1...". Click here to purchase the full version from the ANSI store.

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 concerned 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CAUTION NOTICE: This American National Standard may be revised or withdrawn at any time.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 to reaffirm, revise, or withdraw this standard no later than five years from the date of approval. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.

Published by

The Anti-Friction Bearing Manufacturers Association, Inc.
1101 Connecticut Ave. N.W., Suite 700
Washington, D.C. 20036

Copyright 1990 by The Anti-Friction Bearing Manufacturers Association, Inc.

This is a preview of "ANSI/ABMA-15:1991(R1...". Click here to purchase the full version from the ANSI store.

FOREWORD

(This foreword is not part of ANSI/AFBMA Standard 15–1990, Ball Bearings with Spherical Outside Surfaces and Extended Inner Ring Width.)

This American National Standard specifies boundary dimensions, tolerances, and radial clearances for bearings with spherical outside surfaces and extended inner ring width and eccentric locking collars.

Suggestions for the improvement of this standard gained through experience with its use will be welcomed. These should be sent to the American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.

This standard agrees in most dimensions with ISO Standard 9628.

The officers of Accredited Standards Committee B3 of the American National Standards Institute and the organizations represented at the time this standard was submitted are as follows:

W. G. Looft, Chairman G. T. Satterfield, Secretary

Anti-Friction Bearing Manufacturers Association
Hydraulic Institute
National Machine Tool Builders Association
Society of Tribologists and Lubrication Engineers
U.S. Department of Defense, DISC
U.S. Department of the Navy

This is a preview of "ANSI/ABMA-15:1991(R1...". Click here to purchase the full version from the ANSI store.

AFBMA Standards
for
Ball and Roller Bearings
and Balls

1 — Terminology for Anti-Friction Ball and Roller Bearings and Parts

4 — Tolerance Definitions and Gaging Practices for Ball and Roller Bearings

7 — Shaft and Housing Fits for Metric Radial Ball and Roller Bearings (Except Tapered Roller Bearings) Conforming to Basic Boundary Plans

8.1 — Ball and Roller Bearing Mounting Accessories, Metric Design

8.2 — Ball and Roller Bearing Mounting Accessories, Inch Design

9 — Load Ratings and Fatigue Life for Ball Bearings

10 — Metal Balls

11 — Load Ratings and Fatigue Life for Roller Bearings

12.1 — Instrument Ball Bearings, Metric Design

12.2 — Instrument Ball Bearings, Inch Design

13 — Rolling Bearing Vibration and Noise (Methods of Measuring)

14 — Housings for Bearings with Spherical Outside Surfaces

15 — Ball Bearings with Spherical Outside Surfaces and Extended Inner Ring Width (Includes Eccentric Locking Collars)

16.1 — Airframe Ball, Roller, and Needle Roller Bearings, Metric Design

16.2 — Airframe Ball, Roller, and Needle Roller Bearings, Inch Design

17 — Needle Rollers, Metric Design

18.1 — Needle Roller Bearings, Radial, Metric Design

18.2 — Needle Roller Bearings, Radial, Inch Design

19 — Tapered Roller Bearings, Radial, Inch Design

19.1 — Tapered Roller Bearings, Radial, Metric Design

20 — Radial Bearings of Ball, Cylinder Roller and Spherical Roller Types, Metric Design

21.1 — Thrust Needle Roller and Cage Assemblies and Thrust Washers, Metric Design

21.2 — Thrust Needle Roller and Cage Assemblies and Thrust Washers, Inch Design

22.1 — Spherical Plain Radial Bearings, Joint Type — Metric Design

22.2 — Spherical Plain Radial Bearings, Joint Type — Inch Design

23.2 — Thrust Bearings of Tapered Roller Type — Inch Design

24.1 — Thrust Bearings of Ball, Cylindrical Roller and Spherical Roller Types — Metric Design

24.2 — Thrust Bearings of Ball and Cylindrical Roller Types — Inch Design

25.2 — Rolling Bearings, Linear Motion, Recirculating Ball, Sleeve Type, Inch Series

An AFBMA Standard is intended as a guide to aid the manufacturer, the consumer, and the general public. The existence of an AFBMA Standard does not in any respect preclude anyone, whether he has approved the standard or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standard. AFBMA Standards are subject to revision or withdrawal at any time and users who refer to an AFBMA Standard should satisfy themselves that they have the latest information from the Association.

This is a preview of "ANSI/ABMA-15:1991(R1...". Click here to purchase the full version from the ANSI store.

BALL BEARINGS WITH SPHERICAL OUTSIDE SURFACES AND EXTENDED INNER RING WIDTH (INCLUDES ECCENTRIC LOCKING COLLARS)

CONTENTS

LIST OF TABLES

This is a preview of "ANSI/ABMA-15:1991(R1...". Click here to purchase the full version from the ANSI store.

BALL BEARINGS WITH SPHERICAL OUTSIDE SURFACES AND EXTENDED INNER RING WIDTH
(Includes Eccentric Locking Collars)

1. SCOPE

This Standard specifies boundary dimensions and tolerances for bearings with spherical outside surfaces and extended inner ring width and eccentric locking collars. These bearings are frequently mounted in housings having mating internal spherical surfaces to provide alignment at mounting.

Relubrication features are optional and may be designed to interface with the lubrication zones of mating housings so that the bearings will be properly lubricated. The relubrication means in the outer ring, if used, shall be located on one or both sides of the outer ring zones, defined by dimensions in the tables, in such a way that lubricant will satisfactorily feed into the bearing from a housing bore groove covering the zone.

2. SYMBOLS AND DIMENSIONS

A = Width of inner ring eccentric surface
A_1 = Width of collar eccentric surface
ΔA_{1s} = Eccentric locking collar, deviation of a single collar eccentric surface width
B = Nominal inner ring width
B_1 = Overall inner ring width including eccentric locking collar
B_2 = Nominal eccentric locking collar width
ΔB_{2s} = Eccentric locking collar, deviation of a single collar width
C = Nominal outer ring width
C_a = Distance from center of outer ring width to center of lubrication zone
C_b = Width of lubrication zone
d = Nominal bearing and eccentric locking collar bore diameter
Δd_{mp} = Single plane mean bore diameter deviation
V_{dp} = Bore diameter variation in a single radial plane
Δd_s = Deviation of a single bore diameter
d_1 = Eccentric locking collar outside diameter
d_2 = Eccentric locking collar small bore diameter of eccentric surface at theoretical sharp corner
Δd_{2s} = Eccentric locking collar, deviation of a single small bore diameter of eccentric surface
d_3 = Large diameter of inner ring eccentric surface at theoretical sharp corner
D = Nominal bearing outside diameter
H = Eccentricity
ΔH_s = Eccentricity deviation in a single radial plane
r_1 = Chamfer dimension of inner ring eccentric surface
$r_{1s\ min}$ = Smallest single chamfer dimension of inner ring eccentric surface
r_2 = Fillet radius of inner ring eccentric surface
$r_{2s\ max}$ = Largest single fillet radius of inner ring eccentric surface
r_3 = Fillet radius of collar eccentric surface
$r_{3s\ max}$ = Largest single fillet radius of collar eccentric surface
r_4 = Chamfer dimension of collar eccentric surface
$r_{4s\ min}$ = Smallest single chamfer dimension of collar eccentric surface
S = Distance from center of inner ring raceway to inner ring face on side opposite the locking device
S_1 = Distance from center of inner ring raceway to the face of inner ring or locking collar limiting the overall bearing width on the locking device side

Dimensions labeled maximum represent the largest actual value permitted.
Dimensions labeled minimum represent the smallest actual value permitted.