

AMERICAN NATIONAL STANDARD

*Accredited Standards
Committee B3*



Ball Bearings With Spherical Outside Surfaces And Extended Inner Ring Width (Includes Eccentric Locking Collars) ANSI/ABMA 15:1991

Secretariat

American Bearing
Manufacturers Association

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Stabilized Maintenance 2010



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ERRATA SHEET FOR STANDARD 15-1991

Table 1 Part 1

d = 52.338 should be d = 52.388

Table 2 Part 1

d = 52.338 should be d = 52.388

Table 3 Part 1

d = 52.338 should be d = 52.388

Table 4 Part 1

d = 52.338 should be d = 52.388

Table 5 Part 1

d = 52.338 should be d = 52.38

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

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**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.

Inner Ring: Tables 1 through 4 represent commonly used bearing types. The actual inner ring width and face to center of raceway dimensions are rarely critical in practical applications since those bearings are most commonly used with straight cylindrical shafting having no inner ring face abutting shoulders. These width values are reference dimensions except where noted as maximums.

Outer Ring: Outer ring widths also are not generally critical since axial abutting shoulders or snap rings would normally not be used or required for axial retention of spherical-outside-diameter rings. In addition, due to various relubricatable designs outer ring widths vary between manufacturers. For these reasons, the minimum and maximum outer ring widths are not tolerances; they indicate the range within the nominal must fall.

Collars: Users frequently purchase bearings and collars from different sources. In order to help promote standardization and interchangeability eccentric surface dimensions (d_2 and d_3) are shown for both inner rings and collars.