

ANSI/ABMA
Std. 19.2 - 1994

**AMERICAN NATIONAL STANDARD
ABMA STANDARD**

**TAPERED ROLLER BEARINGS - RADIAL
INCH DESIGN**

Sponsored by

The American Bearing Manufacturers Association, Inc.

Approved May 12, 1994

American National Standards Institute, Inc.

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FOREWORD

(This foreword is not part of ANSI/ABMA Standard 19.2, Tapered Roller Bearings -Radial, Inch Design.)

This American National Standard describes the types of inch design radial tapered roller bearings and the dimensions affecting interchangeability, specifies tolerances for these bearings, and provides recommended cup and cone fitting practices for industrial and automotive applications. The five-part numbering system for radial tapered roller bearings is described.

Boundary dimensions are not contained in this standard. For boundary dimensions, refer to manufacturers' catalogs. ABMA maintains a clearinghouse of those dimensions affecting tapered roller bearing interchangeability.

Tapered roller bearing duty class is based on the 1948 radial capacity formula. Procedural information regarding the determination of duty class can be obtained from ABMA.

Copies of ISO standards concerning rolling element (anti-friction) bearings are available from the American National Standards Institute.

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., 11 West 42nd Street, 13th Floor, New York, NY 10036.

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

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Hydraulic Institute
Association for Manufacturing Technology
Society of Tribologists and Lubrication Engineers
U.S. Department of Defense, DISC
U.S. Department of the Navy

**ABMA Standards
(formerly AFBMA Standards)
for
Ball and Roller Bearings**

- 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 - Mounting Accessories, Metric Design
- 8.2 - 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
- 19.1 - Tapered Roller Bearings, Radial, Metric Design
- 19.2 - Tapered Roller Bearings, Radial, Inch Design
- 20 - Radial Bearings of Ball, Cylindrical 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
- 26.2 - Thin Section Ball Bearings, Radial, Inch Design

An ABMA Standard is intended as a guide to aid the manufacturer, the consumer, and the general public. The existence of an ABMA 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. ABMA Standards are subject to revision or withdrawal at any time and users who refer to an ABMA Standard should satisfy themselves that they have the latest information from the Association.

TAPERED ROLLER BEARINGS - RADIAL INCH DESIGN

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TAPERED ROLLER BEARINGS - RADIAL INCH DESIGN

1 Scope

This standard covers inch design radial tapered roller bearings of various types, part numbering systems, tolerances, and fitting practices. For boundary dimensions, refer to manufacturers' catalogs. Tapered roller thrust bearings are covered in ANSI/ABMA Standard 23.2.

General ABMA standards which apply to various types of bearings should be consulted for tolerance definitions, gauging practices, mounting accessories, and method of evaluating load ratings.

2 Part Numbering Systems

2.1 Identification Code. Inch design tapered roller bearings are numbered in an identical manner or reference is made to the universal number by all producers. Therefore, an identification code for the use of bearing users to provide a universal language for describing and identifying these products is not required.

2.1.1 Individual Component Part Numbers.

Unlike other bearing types, tapered roller bearing cones and cups are individually numbered. The cone is assembled with rollers and a cage, and when used with a cup, makes a complete bearing assembly. Both cone and cup numbers are required to identify a complete bearing assembly. The cone number followed by the cup number is the preferred practice.

2.2 ABMA Standard 19.2 Designation System. The current part numbering system

for tapered roller bearings attempts to describe each bearing on the basis of dimensional and functional interchangeability. The system has been in use since 1950. Another system for bearings designated prior to 1950 is described in Appendix A.

2.2.1 General Arrangement. The cone and cup part numbers, consisting of prefix letters, numerical designators, and suffix letters, are divided into five sections as shown below and described in the following paragraphs.

COMPONENT NUMBER				
SERIES NUMBER				
SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5
Series Prefix	Angle Code	Basic Series	Component Number	Modification Suffix
HM	9	032	49	A
HM	9	032	10	

2.2.2 Section 1 - Series Designation. The series designation uses a prefix consisting of one or two letters which designate the duty class of the series based on the 1948 radial capacity formula. A complete list of prefixes and their designation follows:

Prefix	Series Designation
EH	Extra Heavy Series
EL	Extra Light Series
H	Heavy Series
HH	Heavier than Heavy Series
HM	Heavy-Medium Series
L	Light Series
LL	Lighter than Light Series
LM	Light-Medium Series
M	Medium Series
J	Indicates Metric. See ABMA Standard 19.1. Prefixes other than above or absence of prefixes indicates original system. See Appendix A.