STANDARD

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Std. 21.1-1988

AMERICAN NATIONAL STANDARD

AFBMA STANDARD

THRUST NEEDLE ROLLER AND CAGE ASSEMBLIES AND THRUST WASHERS METRIC DESIGN

Sponsor
The Anti-Friction Bearing
Manufacturers Association

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American National Standard

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FOREWORD

(This foreword is not a part of ANSI/AFBMA Standard 21.1-1988, Thrust Needle Roller and Cage Assemblies and Thrust Washers, Metric Design.)

This American National Standard consolidates the boundary dimensions, tolerance limits and fitting and mounting practices for metric design thrust needle rollers and cage assemblies and thrust washers which have been in general use in the USA in recent years. Many of the boundary dimensions are formerly found in ANSI/AFBMA Standard 21-1977.

The dimensions, tolerances and clearances stated in this standard are based on metric units and are found in Part I of the various tables. A soft conversion to U.S. customary (inch-pound) units is provided in Part II of the various tables for the convenience of the user.

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.

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

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Anti-Friction Bearing Manufacturers Association
Hydraulic Institute
National Machine Tool Builders Association
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AFBMA Standards
for
Ball and Roller Bearings
and Balls

1 — Terminology
4 — Tolerance Definitions and Gaging Practices
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 Ball Bearings
12.1 — Instrument Ball Bearings, Metric Design
12.2 — Instrument Ball Bearings, Inch Design
13 — Rolling Bearing Vibration and Noise
14 — Housing 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, Metric 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
22.2 — Spherical Plain 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

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.

Thrust Needle Roller and Cage Assemblies and Thrust Washers Metric Design

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Thrust Needle Roller and Cage Assemblies and Thrust Washers Metric Design

1. SCOPE

This standard for metric thrust needle roller and cage assemblies and thrust washers includes:

Identification Code
Symbols and Nomenclature
Boundary Dimensions
Tolerances
Mounting Practice

All thrust needle roller and cage assemblies and thrust washers listed in this standard are not necessarily available. For availability consult bearing manufacturers. Other applicable standards should be consulted for tolerance definitions, gaging practices and methods of evaluating load ratings.

This standard only covers external dimensions. Functional interchangeability between makers of standard thrust needle roller and cage assemblies and thrust washers of the same size may depend on features which are not standardized. Hence the substitution of one make of a standard bearing for another should only be made after careful comparison of their characteristics and consideration of the requirements of the particular application.

2. IDENTIFICATION CODE

2.1 General—This code identifies and as far as possible describes each thrust needle roller and cage assembly or thrust washer on the basis of complete interchangeability. This code establishes a universal language for describing and identifying assemblies and washers in order to facilitate communications between the user and the manufacturer. The code is also intended to simplify the handling by user personnel of identical assemblies or washers made by different manufacturers whose identification numbers may be different.

This code applies only to those metric thrust needle roller and cage assemblies or thrust washers whose boundary dimensions and tolerances conform to this standard.

2.2 Structure of the Code—As shown in the following table, Schematic Arrangement of a Complete Code Number, the code consists of one or two sections.

Section 1, called the Basic Number, includes a diameter symbol made up of a group of numerals, followed by a type symbol made up of a group of letters and finally by a dimension series symbol made up of a group of numerals. This Basic Number must always be used.

Section 2, pertains only to thrust needle roller and cage assemblies, and when used delineates cage materials.

In the Schematic Arrangement Table below, "O" represents any code numeral and "A" represents any code letter.

SCHEMATIC ARRANGEMENT OF A COMPLETE CODE NUMBER

SECTION 1, BASIC NUMBER			SECTION 2*
Diameter	Type	Dimension Series	Cage Material
000	AAA	00	A

*Section 2, when used, pertains only to thrust needle roller and cage assemblies