



Designation: F2430 – 04 (Reapproved 2018)

Standard Specification for Bearing, Roller, Needle: Assembly (Thick Outer Race)¹

This standard is issued under the fixed designation F2430; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 This specification covers needle roller bearing assemblies. These assemblies have thick outer rings, cages, rollers, and inner rings. The assemblies consist of a MS51961 thick outer race needle roller bearing as specified in Specification F2246 and a corresponding MS51962 inner ring as specified in Specification F2431

1.2 The bearings being specified are intended to be used on unhardened shafts. MS51961 bearings without inner rings, as specified in Specification F2246, may be used for used directly on hardened shafts (HRC58–65; see Test Methods E18).

1.3 Bearings designed to this specification are intended for use in applications requiring high radial load with minimal angular shaft misalignment.

1.4 This specification contains many of the requirements of MS500072, which was originally developed by the Department of Defense and maintained by the Defense Supply Center in Richmond. The following government activity codes may be found in the Department of Defense, Standardization Directory SD-1.²

| | | |
|-------------------------------|---|--------------------------------------|
| Preparing activity DLA-GS4 | Custodians Army –AT Navy-OS Air Force-99 | Review Activity Air Force- 11, 84 |
|-------------------------------|---|--------------------------------------|

1.5 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recom-*

¹ This specification is under the jurisdiction of ASTM Committee F34 on Rolling Element Bearings and is the direct responsibility of Subcommittee F34.04 on Automotive/Industrial Bearing.

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² The Military codes that are listed in SD-1 give the address and phone numbers of the DoD contacts. These are found in the DoD's ASSIST website: <http://quicksearch.dla.mil>.

mendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

2. Referenced Documents

2.1 ASTM Standards:³

E18 Test Methods for Rockwell Hardness of Metallic Materials

F2246 Specification for Bearing, Roller, Needle: Thick Outer Ring With Rollers and Cage

F2431 Specification for Ring Bearing, Inner: For Needle Roller Bearing with Thick Outer Ring

2.2 Military Standards:⁴

MIL-STD-130 Identification Marking of U.S. Military Property

MIL-DTL-197 Packaging of Bearings, Associated Parts and Subassemblies

2.3 ABMA Standards:⁵

ABMA 4 Tolerance Definitions and Gauging Practices for Ball and Roller Bearings

ABMA 18.2 Needle Roller Bearings Radial, Inch Design

2.4 ISO Standard:⁶

ISO 5593 Rolling Bearings—Vocabulary

3. Terminology

3.1 *Definitions*—For definitions of terms used in this specification, refer to ABMA STD 4 and to ISO 5593.

4. Ordering Information

4.1 When ordering parts in accordance with this specification, specify the following:

4.1.1 ASTM designation number, including year of issue,

4.1.2 Dash number (see Table 1),

³ For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

⁴ Available from DLA Document Services, Building 4/D, 700 Robbins Ave., Philadelphia, PA 19111-5094, <http://quicksearch.dla.mil>.

⁵ Available from American Bearing Manufacturers Association 330 N. Wabash Ave., Ste. 2000 Chicago, IL 60611, <https://www.americanbearings.org/page/standards>.

⁶ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

TABLE 1 Nominal Bearing Dimensions

| MS500072 Dash Number | For Actual Sizes and Tolerances See Specifications F2246 and F2431 | | | | MS51961 Bearing Dash Number (Specification F2246) | MS51962 Inner Ring Dash Number (Specification F2431) |
|----------------------------|---|---|--|--|---|--|
| | <i>d</i> Bore Diameter, in. | <i>D</i> Outside Diameter, in. | <i>B</i> Inner Ring Width, in. | <i>C</i> Outer Ring Width, in. | | |
| | Nom. | Nom. | Nom. | Nom. | | |
| -1 | 3/8 | 1 1/8 | 3/4 | 3/4 | -1 | -1 |
| -2 | 1/2 | 1 1/4 | 3/4 | 3/4 | -2 | -2 |
| -3 | 1/2 | 1 1/4 | 1 | 1 | -3 | -3 |
| -4 | 5/8 | 1 3/8 | 3/4 | 3/4 | -5 | -4 |
| -5 | 3/4 | 1 1/2 | 3/4 | 3/4 | -8 | -5 |
| -6 | 13/16 | 1 1/2 | 3/4 | 3/4 | -8 | -6 |
| -7 | 13/16 | 1 1/2 | 1 | 1 | -9 | -7 |
| -8 | 7/8 | 1 5/8 | 1 | 1 | -11 | -8 |
| -9 | 15/16 | 1 5/8 | 1 | 1 | -11 | -9 |
| -10 | 1 | 1 3/4 | 1 | 1 | -14 | -10 |
| -11 | 1 | 1 3/4 | 1 1/4 | 1 1/4 | -15 | -11 |
| -12 | 1 1/8 | 1 7/8 | 1 | 1 | -18 | -12 |
| -13 | 1 1/8 | 1 7/8 | 1 1/4 | 1 1/4 | -19 | -13 |
| -14 | 1 3/16 | 2 1/16 | 1 1/4 | 1 1/4 | -22 | -14 |
| -15 | 1 1/4 | 2 1/16 | 1 | 1 | -21 | -15 |
| -16 | 1 1/4 | 2 1/16 | 1 1/4 | 1 1/4 | -22 | -16 |
| -17 | 1 9/16 | 2 3/16 | 1 | 1 | -24 | -17 |
| -18 | 1 3/8 | 2 3/16 | 1 1/4 | 1 1/4 | -25 | -18 |
| -19 | 1 3/8 | 2 5/16 | 1 1/4 | 1 1/4 | -28 | -19 |
| -20 | 1 7/16 | 2 5/16 | 1 1/4 | 1 1/4 | -28 | -20 |
| -21 | 1 1/2 | 2 5/16 | 1 | 1 | -27 | -21 |
| -22 | 1 1/2 | 2 5/16 | 1 1/4 | 1 1/4 | -28 | -22 |
| -23 | 1 5/8 | 2 9/16 | 1 1/4 | 1 1/4 | -30 | -23 |
| -24 | 1 3/4 | 3 | 1 1/2 | 1 1/2 | -31 | -24 |
| -25 | 1 3/4 | 3 | 1 3/4 | 1 3/4 | -32 | -25 |
| -26 | 1 5/16 | 3 1/4 | 1 3/4 | 1 3/4 | -34 | -26 |
| -27 | 2 | 3 1/4 | 1 1/2 | 1 1/2 | -33 | -27 |
| -28 | 2 3/16 | 3 1/2 | 1 3/4 | 1 3/4 | -36 | -28 |
| -29 | 2 1/4 | 3 1/2 | 1 1/2 | 1 1/2 | -35 | -29 |
| -30 | 2 3/8 | 3 3/4 | 1 3/4 | 1 3/4 | -38 | -30 |
| -31 | 2 1/2 | 3 3/4 | 1 1/2 | 1 1/2 | -37 | -31 |
| -32 | 2 3/4 | 4 1/4 | 1 3/4 | 1 3/4 | -39 | -32 |
| -33 | 2 3/4 | 4 1/2 | 2 | 2 | -40 | -33 |
| -34 | 2 15/16 | 4 1/2 | 2 | 2 | -42 | -34 |
| -35 | 3 1/8 | 4 3/4 | 2 | 2 | -43 | -35 |
| -36 | 3 1/4 | 4 3/4 | 2 | 2 | -43 | -36 |
| -37 | 3 1/4 | 5 | 2 | 2 | -45 | -37 |
| -38 | 3 3/8 | 5 | 2 | 2 | -45 | -38 |
| -39 | 3 1/2 | 5 1/4 | 2 | 2 | -46 | -39 |
| -40 | 3 3/4 | 5 1/4 | 2 | 2 | -46 | -40 |
| -41 | 3 3/4 | 6 | 2 1/2 | 2 1/2 | -49 | -41 |
| -42 | 4 | 6 1/2 | 2 1/2 | 2 1/2 | -51 | -42 |
| -43 | 4 1/2 | 7 | 2 1/2 | 2 1/2 | -52 | -43 |
| -44 | 4 1/2 | 7 | 3 | 3 | -53 | -44 |
| -45 | 4 3/4 | 7 1/4 | 3 | 3 | -54 | -45 |
| -46 | 5 | 7 1/2 | 2 1/2 | 2 1/2 | -55 | -46 |
| -47 | 5 | 7 1/2 | 3 | 3 | -56 | -47 |
| -48 | 5 1/2 | 8 | 2 1/2 | 2 1/2 | -57 | -48 |
| -49 | 5 1/2 | 8 | 3 | 3 | -58 | -49 |
| -50 | 6 | 9 1/8 | 3 | 3 | -59 | -50 |

4.1.3 Dimensions of roller bearings, including:
 4.1.3.1 Bore diameter, in. (mm),
 4.1.3.2 Outside diameter, in. (mm),

4.1.3.3 Inner ring width, in. (mm),
 4.1.3.4 Outer ring width, in. (mm), and