



Designation: F 2163 – 01

## Standard Specification for Ring, Bearing, Inner: for Needle Roller Bearing With Drawn Outer Ring<sup>1</sup>

This standard is issued under the fixed designation F 2163; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This specification covers inner rings for needle roller bearings with drawn outer rings.

1.2 The inner rings specified in this specification are intended for use on unhardened shafts in conjunction with open end needle roller bearings shown on Specification F 2162 and MS52141.

1.3 The use of recycled materials that meet the requirements of the applicable material specification without jeopardizing the intended use of the item is encouraged.

1.4 The inner rings specified in this specification are not intended for use in flight-critical systems of aircraft.

1.5 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are provided for information only.

NOTE 1—This specification was originally developed by the Department of Defense and maintained by the Defense Supply Center Richmond. It is intended to replicate the requirements of MS 17130.

### 2. Referenced Documents

#### 2.1 ASTM Standards:

E 18 Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials<sup>2</sup>

F 2162 Specification for Bearing, Roller, Needle: Drawn Outer Ring, Full Complement, Without Inner Ring, Open and Closed End, Standard Type<sup>3</sup>

#### 2.2 ASME Standard:

ASME B 46.1 Surface Texture Surface Roughness, Waviness, and Lay<sup>4</sup>

#### 2.3 SAE Standards:

SAE AHS STD-66<sup>5</sup>

SAE J-404 Chemical Composition of SAE Alloy Steels<sup>5</sup>

#### 2.4 Military Standards:

MIL-STD-130 Identification Marking of US Military Property<sup>6</sup>

MS52141 Bearing, Roller, Needle: Drawn Outer Ring, Caged, Without Inner Ring, Open and Closed End, Standard Type<sup>6</sup>

#### 2.5 American Bearing Manufacturer's Association (ABMA) Standard:

STD 4 Tolerance Definitions and Gauging Practices For Ball and Roller Bearings<sup>7</sup>

#### 2.6 ISO Standard:

ISO 5593 Rolling Bearings—Vocabulary<sup>8</sup>

### 3. Terminology

3.1 *Definitions*—For definitions of terms used in this specification, refer to ABMA STD 4 and 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); and

4.1.3 Dimensions of inner rings, including:

4.1.3.1 Bore diameter, in.;

4.1.3.2 Outside diameter, in.;

4.1.3.3 Width, in.; and

4.1.3.4 Radius, in.

### 5. Materials and Manufacture

5.1 Bearing inner rings shall be manufactured of steel, alloy or carbon, carburizing grade 4620, 4720, 8620, 8720, or 1018, 1022, or 1117 in accordance with SAE AHS STD-66 or SAE E52100 in accordance with SAE J-404.

### 6. Other Requirements

#### 6.1 Heat Treatment:

6.1.1 Steel 4620, 4720, 8620, 8720, 1018, 1022, and 1117 shall be case hardened to Rockwell HRC58-65, in accordance with Test Methods E 18. Case depth shall be 0.020 minimum.

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee F34 on Rolling Element Bearings and is the direct responsibility of Subcommittee F34.01 on Rolling Element.

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 03.01.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 01.08.

<sup>4</sup> Available from Global Engineering Documents, 15 Inverness Way, East Englewood, CO 8011.

<sup>5</sup> Available from SAE International, 400 Commonwealth Dr., Warrendale, PA 15096-0001.

<sup>6</sup> Available from USA Information Systems, 1092 Laskin Rd., Ste. 208, Virginia Beach, VA 23451.

<sup>7</sup> Available from the American Bearing Manufacturer's Association, 1200 19th St. NW, Ste. 300, Washington, DC 20036-2401.

<sup>8</sup> Available from ANSI, 1819 L St. NW, Ste. 600, Washington, DC 20036.