



Standard Specification for Carburizing Steels for Anti-Friction Bearings¹

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This standard has been approved for use by agencies of the Department of Defense. Consult the DoD Index of Specifications and Standards for the specific year of issue which has been adopted by the Department of Defense.

1. Scope

1.1 This specification covers the requirements for carburizing bearing-quality steel to be used in the manufacture of anti-friction bearings.

1.2 Supplementary requirements of an optional nature are provided and when desired shall be so stated in the order.

1.3 The values stated in inch-pound units are to be regarded as the standard.

2. Referenced Documents

2.1 ASTM Standards:

A 29/A29M Specification for Steel Bars, Carbon and Alloy, Hot-Wrought and Cold Finished, General Requirements for²

A 255 Method for End-Quench Test for Hardenability of Steel²

A 304 Specification for Steel Bars, Alloy, Subject to End-Quench Hardenability Requirements²

A 510 Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel³

A 519 Specification for Seamless Carbon and Alloy Steel Mechanical Tubing⁴

A 751 Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products³

A 752 Specification for General Requirements for Wire Rods and Coarse Round Wire, Alloy Steel³

E 45 Practice for Determining the Inclusion Content of Steel⁵

E 112 Test Methods for Determining the Average Grain Size⁵

E 381 Method of Macroetch Testing, Inspection, and Rating Steel Products, Comprising Bars, Billets, Blooms, and Forgings⁵

E 1077 Test Method for Estimating the Depth of Decarbur-

ization of Steel Specimens⁵

3. Ordering Information

3.1 Orders for material under this specification should include the following information:

3.1.1 Quantity,

3.1.2 Alloy grade identification,

3.1.3 Specification designation and year of issue, and

3.1.4 Dimensions, shape, and

3.1.5 Supplementary requirements.

4. Materials and Manufacture

4.1 The steel shall be made by a process that is capable of providing a high quality product meeting the requirements of this specification.

5. Chemical Composition and Analysis

5.1 Typical examples of chemical compositions are shown in Table 1. Other compositions may be specified.

5.2 An analysis of each heat of steel shall be made by the steel manufacturer in accordance with Test Methods, Practices, and Terminology A 751. The chemical composition thus determined shall conform to the requirements specified in Table 1 for the ordered grade, or to other requirements agreed upon between manufacturer and purchaser.

5.3 Product analysis may be made by the purchaser in accordance with Test Methods A 751. Permissible variations in product analysis shall be in accordance with Specification A 29/A 29M, Practices, and Terminology.

6. Dimensions, Mass, and Permissible Variations

6.1 The size and shape of the material shall be agreed upon between manufacturer and purchaser.

6.2 Dimensional tolerances shall conform to the requirements specified in Specifications A 29/A 29M, A 510, A 519, or A 752 as appropriate for the material or as agreed between manufacturer and purchaser.

6.3 The dimensional tolerances for the forgings shall conform to the requirements of the engineering drawing.

7. Quality Assurance

7.1 The supplier shall be held responsible for the quality of the material furnished and shall make the necessary tests to ensure this quality. The supplier shall be required to report on

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² Annual Book of ASTM Standards, Vol 01.05.

³ Annual Book of ASTM Standards, Vol 01.03.

⁴ Annual Book of ASTM Standards, Vol 01.01.

⁵ Annual Book of ASTM Standards, Vol 03.01.