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Load Instrument Ball Bearings Metric Design ANSI/ABMA 12.1:1992



Secretariat

**American Bearing
Manufacturers Association**

ANSI/ABMA 12.1:1992

Stabilized Maintenance 2010



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Instrument Ball Bearings Metric Design

1. SCOPE

1.1 This standard covers the characteristics that define metric design instrument ball bearings, their boundary dimensions, tolerances, internal clearances, classification for selective assembly, and recommended practices for gaging, friction torque determination, load rating, operational life prediction and yield rate limitation.

1.2 The standard applies only to the size ranges covered by Paragraph 4, Boundary Dimensions.

2. CHARACTERISTICS

2.1 Instrument ball bearings comprise bearings with functional requirements for use in any unit that can, in a general sense, be characterized as an instrument.

2.2 Instrument ball bearings must be particularly free from foreign matter and are typically applied to meet one or more of the following characteristics:

- a. Positional accuracy.
- b. Low friction torque.
- c. Smoothness of operation.
- d. Yield rate limitation.

Due to the many specialized requirements that exist in instrument applications, specifications for these characteristics should be established only after full agreement between the manufacturer and the user.

2.3 Instrument precision ball bearings meet tolerances specified in Classes ABEC 5P, ABEC 7P, ABEC 9P, ABEC 5T and ABEC 7T and may reflect specific requirements against one or more of the characteristics of Paragraph 2.2 above.

2.4 Instrument semi-precision ball bearings meet tolerances specified in Class ABEC 3P.