



# AEROSPACE RECOMMENDED PRACTICE

ARP5483™/6

REV. A

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Superseding ARP5483/6

## Rolling Element Bearing Test Method for Dimensional Stability

### RATIONALE

ARP5483/6A is being revised in association with the five-year document review to clarify abbreviations and correct typographical errors in the text.

#### 1. SCOPE

This test method outlines the recommended procedure for performing dimensional stability tests on rolling element bearings used in airframe applications. Bearings covered by this document shall be antifriction ball bearings and spherical roller bearings with through-hardened outer rings.

#### 2. APPLICABLE DOCUMENTS

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

##### 2.1 ANSI/NCSL Publications

National Conference of Standards Laboratories, 2995 Wilderness Place, Suite 107, Boulder, CO 80301-5404, Tel: 303-440-3339, [www.ncsli.org](http://www.ncsli.org).

ANSI/NCSL Z540-3 Calibration Laboratories and Measuring and Test Equipment- General Requirements

##### 2.2 ISO Publications

Available from International Organization for Standardization, 1, rue de Varembe, Case postale 56, CH-1211 Geneva 20, Switzerland, Tel: +41-22-749-01-11, [www.iso.org](http://www.iso.org).

ISO 10012 Quality Assurance Requirements for Measuring Equipment

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### 3. GENERAL REQUIREMENTS

#### 3.1 Test Apparatus

##### 3.1.1 Measurement Equipment

Standard gage blocks or masters and an indicator, which together are capable of measuring a dimensional change of 0.0001 inch/inch.

##### 3.1.2 Thermal Control Equipment

Oven and freezer chests are required and must be capable of maintaining the applicable temperatures for the required period of time.

#### 3.2 Specimen

##### 3.2.1 Bearings for Dimensional Stability Test

Bearings may be tested as received in which case only new bearings shall be used. It is also acceptable to disassemble the bearing and perform the test on only the outer ring.

##### 3.2.2 Quantity

The number of test specimens shall be as specified in the referencing document.

##### 3.2.3 Disposition of Test Bearings

Bearings tested per this method shall not be put into service.

### 4. DETAILED REQUIREMENTS

#### 4.1 Measurement 1

The outside diameter (OD) of each test bearing shall be measured at two reference points 90 degrees apart using a 2-point gage. The locations of the measurements shall be noted such that they can be easily repeated.

#### 4.2 High Temperature Stabilization

The test bearings shall be heated and maintained at the temperature specified in the applicable bearing document. Unless otherwise stated, the tolerance of the temperature is +10 °F/-0 °F and the time is a minimum. Successful testing at temperatures above the specified values shall not be cause for failure.

#### 4.3 Measurement 2

Upon completion of the heating cycle, allow the bearings to soak at room temperature until they have cooled fully and their temperature has stabilized. Measure the OD of the bearing again at the reference points and record the readings. If any of the OD readings show a dimensional change from the previous measurement of more than that specified in the applicable bearing document, the bearing is unacceptable.

#### 4.4 Low Temperature Stabilization

The test bearing shall be cold soaked and maintained at the temperature specified in the applicable bearing document. Unless otherwise stated, the tolerance of the temperature is +0 °F/-10 °F and the time is a minimum.