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**NATIONAL STANDARD OF THE  
PEOPLE'S REPUBLIC OF CHINA**

**GB/T 46552-2025**

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**Test methods of bolts for aerospace**

航空航天用螺栓试验方法

**(English Translation)**

**Issued on: December 2, 2025**

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### Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is modified to adopt ISO 7961:2021 "Test methods for aerospace bolts".

This document has undergone the following structural adjustments compared to ISO 7961:2021.

---Appendix B corresponds to Appendix C of ISO 7961:2021;

---Appendix C corresponds to Appendix B of ISO 7961:2021.

The technical differences between this document and ISO 7961:2021, and the reasons therefor, are as follows.

---ISO 7500-1 (see 4.1, 4.3, 4.7, 4.9) has been replaced with the normatively referenced GB/T 16825.1 to accommodate my country's technical requirements.

Require;

---Changing the annotations in Figure 3 to paragraphs (see 4.1.2.1) is more in line with Chinese usage habits;

Bolts are classified into tensile and shear types (see 4.3.2.1). Due to differences in thread length between different types of bolts, aerospace bolts...

The thread length of tension bolts is longer than that of shear bolts, which is consistent with the technical requirements of current Chinese standards.

---Change the content of 4.7.1.3 and 4.9.1.3 to "High-temperature furnace, see 4.6.1.2", because the content of 4.7.1.3 and 4.9.1.3 is completely consistent with 4.6.1.2.

same;

---The length measuring instrument should now be able to directly display length changes of 10 $\mu$ m, but this should be changed to display length changes of 2 $\mu$ m. Simultaneously, the measurement accuracy should be increased from...

The 2.5 $\mu$ m value was changed to 2 $\mu$ m (see 4.8.1.2) because the length variation requirement of 10 $\mu$ m was too low, and the measurement accuracy of 2.5 $\mu$ m was not as good as that of current measurement methods.

The accuracy of the measuring instrument is inconsistent with the technical requirements of current Chinese standards.

The following editorial changes have been made to this document.

---Change "at least two complete threads" in the footnote of Figure 2 to "at least two complete threads (for shear bolts, if the length is insufficient, a minimum of 2 complete threads is allowed)".

Leave 0.5 to 1 full thread);

---Setting the lower surface of the fixture in Figure 3c) as the reference plane is an errata;

---The following has been removed. "Note. Safety precautions are recommended to prevent explosive breakage of the test bolts." Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed and is under the jurisdiction of the National Aircraft Standardization Technical Committee (SAC/TC435).

## 1 Scope

This document describes the test methods for bolts used in aerospace applications.

This document applies to the testing of bolts used in aerospace applications.

## 2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

GB/T 16825.1 Inspection and calibration of static uniaxial testing machines for metallic materials - Part 1: Tensile and/or compressive tests Inspection and calibration of

mechanical force measurement systems (GB/T 16825.1-2022, ISO 7500-1:2018, IDT)

### **3 Terms and Definitions**

This document does not contain any terms or definitions that need to be defined.

#### **4.1.1.1.1 Basic Requirements**

The test setup is shown in Figure 1. The test setup should be centered to ensure that the stress uniformity at four equidistant points around the test specimen is within 1%, or...

Ensure that the coaxiality between the bolt and the mounting hole is no greater than 0.025 mm to ensure that a tensile load is applied along the bolt axis.

The calibration of the test apparatus shall comply with the provisions of GB/T 16825.1 and Appendix A.

Other types of test apparatus may be used when the requirements of Figure 3 are met.

#### **4.1.1.1.2 Sleeve**

The sleeve can be fixed or detachable and meets the functional requirements specified in Figure 3.

#### **4.1.1.1.3 Test Nut**

The test nut or threaded clamp (assuming it is a nut) has sufficient strength to ensure bolt failure.

#### **4.1.1.2 Angled Washer**

When procurement specifications or technical documents require an assessment of the effect of interlayer slope on bolt tensile properties, the test should be conducted by placing a test piece below the bolt head.