

ICS 77.160
CCS H 16



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

GB/T 7963-2015

Replacing GB/T 7963-1987

**Sintered metal materials, excluding hard metals -- Tensile test
pieces**

烧结金属材料(不包括硬质合金)拉伸试样

(English Translation)

Issued on: December 10, 2015

Implemented on: July 1, 2016

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine of the People's Republic of China**

Table of Contents

- Foreword
- 1 Scope
- 2 Normative reference documents
- 3 Test method
- 4 Pressing - sintering sample
 - 4.1 Specimen requirements
 - 4.2 Mold requirements

Foreword

This standard is drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 7963-1987 "Sintered metal material (not including cemented carbide) tensile specimen".

Compared with GB/T 7963-1987, the main technical changes are as follows.

- the text structure from the original standard of the two chapters, increased to 7 chapters;
- increased the requirements of metal injection molding specimens;
- increased the specific requirements of mechanical processing samples;
- refinement of the pressing and sintering of the sample pressing the mold requirements.

This standard uses the translation method equivalent to ISO 2740.:2009 "sintered metal material (not including hard alloy) tensile specimen".

And the normative reference in this standard international documents are consistent with the relationship between China's documents are as follows.

GB/T 228.1-2010 Metallic materials - Tensile test - Part 1. Test method for room temperature (ISO 6892-1.:2009, MOD) GB/T 16825.1-2008 Tests for static uniaxial testing machines - Part 1. Tensile force and (or) pressure testing machines Inspection and calibration (ISO 7500-1.:2004, IDT) for ease of use, the following editorial changes have been made to ISO 2740.:2009.

- the fourth chapter of the title "the production of samples" to "suppression - sintering sample";
- For ease of understanding, the bar has been added in Chapter 6.

This standard is proposed by China Nonferrous Metals Industry Association.

This standard is owned by the National Committee for the Standardization of Nonferrous Metals (SAC/TC243).

This standard is responsible for drafting units. Xi'an Baode powder metallurgy limited liability company, Shenzhen injection into Technology Co., Ltd., steel research institute.

1 Scope

This standard specifies the size of the mold used for pressing - sintering, metal injection molding - sintering, and sintering and powder forging the size of the tensile specimen was prepared by machining.

This standard applies to all sintered metals and alloy materials (not including hard alloy) tensile specimens.

2 Normative reference documents

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies to this article Pieces. For undated references, the latest edition (including all modifications) applies to this document.

ISO 6892 Metallic materials at room temperature tensile test method
(Metalicmaterials-Tensiletestatatambienttemper-ature ISO 7500-1 Metallic materials - Tests for static uniaxial testing machines - Part 1. Tensile force systems for tension and/or pressure testing machines
(Metalicmaterials-Verificationofstaticuniaxialtestingmachines-Part 1. Tension /compressiontestingmachines-Verification andcalibrationoftheforce-measuringsystem)

3 Test method

3.1

The test specimen shall be tested in accordance with ISO 6892 and the tensile tester shall be calibrated at level 1 as specified in ISO 7500-1.

3.2

Test the test data for 3 or more specimens.

4.1 Specimen requirements

The tensile specimen has a thickness of 5 mm to 6.5 mm. With the metal powder loose density changes, the thickness tolerance of $\pm 1.5\text{mm}$. test , The specimen is more likely to break around the center of the gauge due to the smaller slip of the thin sample.

If you need to test the elongation of the specimen, it can be symmetrical about the

centerline of the specimen [see Figure 1a), Figure 2a). Gauge distance the thickness variation should not be greater than 0.04mm. Scaling of the specimen should not affect the tensile properties of the specimen. Due to the suppression of the sample under laboratory conditions Edges and corners may produce micro-cracks, the specimen should be visually inspected, if necessary, to observe the magnification test to ensure that there is no length on the sample super 0.25mm microcracks.

4.2 Mold requirements

Figure 1b), Figure 2b) shows two permissible cavity dimensions. Mold material recommended using carbide, mold surface finish should be met

The sample can be normal compression molding. The cavity should be tapered so that it can be demolded to prevent microcracks from being tested. The taper on each side of the cavity is 0.01 the cavity taper for the press mold can be expanded by 0.5%. The mold should be provided with a tightening ring to reduce the lateral expansion during mold pressing and reduce the sample