

ICS 25.040.20

CCS J 53



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

GB/T 16462.6-2017

**Test conditions for numerically controlled turning machines
and turning centers -- Part 6: Accuracy of a finished test piece**

数控车床和车削中心检验条件 第6部分：精加工试件精度检验

(English Translation)

Issued on: July 12, 2017

Implemented on: February 1, 2018

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

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Foreword

GB/T 16462 "CNC lathe and turning center inspection conditions" is divided into eight parts.

- Part 1. Horizontal machine geometry accuracy test;
- Part 2. Vertical machine geometry accuracy test;
- Part 3. Inverted vertical machine geometry accuracy test;
- Part 4. Linear and rotary axis positioning accuracy and repeat positioning accuracy test;
- Part 5. Feed, speed and interpolation accuracy test;
- Part 6. Precision test precision test pieces;
- Part 7. Evaluation of the contour characteristics in the coordinate plane;
- Part 8. Assessment of thermal deformation.

This section GB/T 16462 Part 6.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This section uses the redrafted law revision adopted ISO 13041-6:2009 "CNC lathe and turning center inspection conditions Part 6. Fine Precision machining test pieces. " this part of ISO 13041-6:2009 technical differences and the reasons are as follows.

- Normative references, this section with GB/T 16462.2-2017 and GB/T 16462.3-2017 instead ISO 13041-2 and ISO 13041-3, to adapt to China's technical conditions;
- International Standard 3.7 "The specimen materials, cutting tools and cutting parameters should be the agreement between suppliers/manufacturers and users", in this part of 3.7 to read "the specimen of the material, cutting tools and cutting parameters by the manufacturer custom" after the change is more reasonable;

--- Removed the international standard 3.8 "Recommend the machine model and serial number, date of inspection and the location of the axis marked on the specimen, and the machine delivered at the same time for the user reference "clause, delete this article more in line with national conditions, because the specimen to be reused;

--- International Standard 3.10 "Note 1, Note 2, Note 3 and Note 4" merged into "Note 1 and Note 2", the change is more reasonable;

Change more reasonable;

--- International Standard Table 5 b, i and m tolerance before the absence of "phi", this section adds "phi", the change is more reasonable;

--- International Standard Table 5 m "in the hole N coaxial M to the outer hole" is wrong, this section is corrected as "the inner hole M of the outer hole N Concentricity".

This section and ISO 13041-6:2009 there are technical differences, the provisions of these differences have been passed in the outer margin of the page margin the vertical single (I) is marked.

This part is proposed by China Machinery Industry Federation.

This part of the National Standardization Technical Committee metal cutting machine (SAC/TC22) centralized.

This part of the drafting unit. Shenyang Machine Tool (Group) Co., Ltd., Shenyang Machine Tool Plant, National Machine Tool Quality Supervision and Inspection Center, large Machine Tool Group Co., Ltd., Baoji Machine Tool Group, Anyang Xinsheng Machine Tool Co., Ltd., Zhejiang Kaida Machine Tool Co., Ltd.

Secretary, Nanjing CNC Machine Tool Co., Ltd.

1 Scope

GB/T 16462 provisions of this part of the standard test conditions of finishing a series of cutting test and the characteristics of the specimen itself and size.

The accuracy provided in this section is to assess the minimum requirements for machine tool cutting accuracy.

This section applies to CNC lathes and turning centers (including CNC horizontal spindle machine, CNC vertical spindle machine and CNC upright main Axis machine) work accuracy test.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article Pieces. For undated references, the

latest edition (including all amendments) applies to this document.

GB/T 1182 Geometrical product specifications (GPS) Geometrical tolerances Shape, orientation, position and runout tolerances Marking (GB/T 1182-2008, ISO 1101:2004, IDT) GB/T 16462.1-2007 CNC lathes and turning centers inspection conditions - Part 1. Horizontal machine geometry accuracy test (ISO 13041-1:2004, MOD) GB/T 16462.2-2017 Numerical control lathe and turning center inspection conditions Part 2. Vertical machine geometry accuracy test (ISO 13041-2:2008, MOD) GB/T 16462.3-2017 Testing conditions for CNC lathes and turning centers - Part 3. Geometric inspection of inverted vertical machine tools (ISO 13041-3:2009, MOD) GB/T 17421.1-1998 General rules of inspection of machine tools - Part 1. Geometric accuracy of the machine tool under no load or finishing conditions (eqvISO 230-1:1996)

3.1 Measurement unit

In this section, all linear dimensions, deviations and tolerances in millimeters (mm). All angle size units in terms of degrees, the units of angular deviation and corresponding tolerances are generally expressed as a ratio, but in some cases the values are also expressed in microseconds (μrad) or in angular seconds Said. The conversion is as follows.

$$0.010/1000 = 10\mu\text{rad} \sim 2''$$

3.2 According to the standard

Use this section should be in accordance with GB/T 17421.1, in particular, the installation of machine tools before testing, machine temperature rise, the description of test methods, testing Assessment and compensation of results.

3.3 Inspection order

The order of the inspection items listed in this section does not indicate the actual inspection sequence. In order to disassemble the inspection tools and inspection convenience, Italian order to test.