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

GB/T 16462.4-2007

Replacing GB/T 16462-1996

**Test conditions for numerically controlled turning machines
and turning centre -- Part 4: Accuracy and repeatability of
positioning of linear and rotary axes**

数控车床和车削中心检验条件第4部分:线性和回转轴线的定位精度及重复定位精度检验

(English Translation)

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Foreword

GB/T 16462 "CNC lathes and turning centers Test conditions" is divided into eight sections.

--- Part 1. Horizontal Geometric tests for machines;

--- Part 2. Vertical Geometric tests for machines;

--- Part 3. Geometric tests inverted vertical machine;

--- Part 4. linear and rotary axes positioning accuracy and repeatability of the test;

--- Part 5. feed, speed, and interpolation accuracy test;

--- Part 6. finishing accuracy test specimen;

--- Part 7. Evaluation of contouring performance in the coordinate plane;

--- Part 8. Evaluation of thermal deformation.

This section GB/T Part of 416,462. The partial modification of the use of ISO 13041-4:2004 "CNC lathes and turning centers seized Test conditions - Part 4. linear and rotary axes positioning accuracy and repeatability test "(in English).

This part of ISO 13041-4:2004 compared to the main technical differences are.

--- Increasing the linear axis travel greater than 2000mm machine positional accuracy of the testing methods and the positional accuracy tolerance values.

For ease of use, this standard made the following editorial changes.

- "This standard is the word" to "this Part";
- Chapter 4, the heading "Notes" is replaced by a brief description;
- With a decimal point '. 'Instead of a comma as the decimal point,' ';
- Of ISO 13041-4:2004 and other international standards referenced with has been adopted as our national standard in place of the corresponding international standard;
- Remove the International Standard ISO 13041-4:2004 Foreword and Introduction.

This Part replaces GB/T 16462-1996 "CNC horizontal lathe accuracy test" in the positional accuracy of the test items.

This part is proposed by China Machinery Industry Federation.

This part of the National Metal Cutting Machine Standardization Technical Committee (SAC/TC22) centralized.

This section is drafted. Shenyang CNC machine tools limited liability company.

1 Scope

This section GB/T 16462 specifies the general linear positional accuracy levels of precision CNC lathes and turning centers and rotary axes Inspection and position accuracy tolerance values.

Bit This section applies to CNC lathes and turning centers of the linear axis (travel to 2000mm) and the axis of rotation (stroke to 360 °) of Positional accuracy test. Linear axis greater than 2000mm CNC lathes and turning centers and test methods can also be specified in the provisions of this section refer to the positional accuracy of the value of tolerance.

This portion of the reference of GB/T 17421.2-2000, therefore, GB/T 17421.2-2000 environmental conditions have been described, the machine Temperature and measurement methods in this section will not be repeated.

2 Normative references

The following documents contain provisions which, through reference GB/T 16462 in this section constitute provisions of this section. For dated reference documents Member, all subsequent amendments (not including errata content) or revisions do not apply in this section. However, under this part are encouraged to reach Parties to research agreement to use the latest versions of these documents. For undated reference documents, the latest versions apply to this section.

GB/T 17421.1-1998 Test code for machine tools - Part 1. under no-load or finishing conditions Geometric accuracy of machines (Eqv ISO 230-1:1996) GB/T 17421.2-2000 Test

code for machine tools - Part 2. CNC axis positioning accuracy and repeatability of determination (Eqv ISO 230-2:1997) GB/T 16462.1-2007 CNC lathes and turning centers test conditions - Part 1. Geometric tests for machines Horizontal (ISO 13041-1:2004, MOD)

3 Terms and Definitions

GB/T 16462.1-2007 The terms and definitions apply to this section.

4.1 Units of measurement

In this section, all of the linear dimensions, tolerances and corresponding tolerances are expressed in units of millimeters, according to the size of an angle in degrees, and the angle and the corresponding error tolerance as a ratio, but in some cases, can also use the micro-arc seconds or arc expressed in terms of its relationship formula below.

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

4.2 Referring to GB/T 17421.2-2000

The application of this section should refer to GB/T 17421.2-2000, especially machine testing before installation, spindles and other moving parts Description and test results raised, measurement evaluation and presentation.

4.3 Test order

Inspection order listed in this section do not represent the actual test sequence, in order to facilitate the installation verification tools can be in any order test.