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

GB/T 18400.5-2010

**Test conditions for machining centre -- Part 5: Accuracy and
repeatability of positioning of work-holding pallets**

加工中心检验条件 第5部分：工件夹持托板的定位精度和重复定位精度检验

(English Translation)

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Foreword

GB/T 18400 "Test conditions for machining centers" is divided into ten parts.

--- Part 1. horizontal spindle and with head Geometric tests for machines (horizontal Z-axis);

Universal spindle head Geometric tests for machines (vertical Z-axis) or vertical with vertical primary rotary axis;. --- Part 2

--- Part 3. with horizontal rotary axis of the main spindle head overall universal Geometric tests for machines (vertical Z-axis);

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

--- Part 5. Clamp the workpiece pallet positioning accuracy and repeatability of positioning accuracy test;

--- Part 6. feed rate, speed and accuracy test interpolation;

--- Part 7. finishing accuracy test specimen;

--- Part 8. Evaluation of the contouring performance in the three coordinate plane;

--- Part 9. Evaluation of conversion tool changer and pallet operation time;

--- Part 10. Evaluation of thermal effects.

This section GB/T 18400 Part 5.

This part identical with ISO 10791-5:1998 "Test conditions for machining centers - Part 5. Positioning precision workpiece clamping and heavy pallets Re-positioning accuracy test "(in English).

Taking into account China's national conditions, in the use of ISO 10791-5:1998 when this part has made several editorial changes.

- "This standard" be replaced by "this section";
- Title Chapter 3, "a brief description" to "General requirements";
- Remove the ISO 10791-5:1998 Foreword and Introduction, increasing the national standards foreword;
- Remove the ISO 10791-5:1998 Annex A (informative).

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. Beijing Machine Tool Research Institute, Beijing First Machine Tool Plant.

1 Scope

This section GB/T 18400 specifies the respective workpiece holding pallet on the machine (hereinafter referred to as the pallet) repeat positioning accuracy and a set of care Plate positioning accuracy of testing methods and tolerances.

This section applies to a single processing center with multiple pallet does not apply to the processing center manufacturing systems. In Manufacturing Systems, Engineering Positioning accuracy member or workpiece holding fixture depends on cooperation with the pallet receiving means. Only when the test tool is placed in a different location of the machine with respect to the origin of the linear axis is exactly the same, this part of the test results can be extended to the entire manufacturing system. In fact it is difficult to Do, and there is an error, because the origin of the linear axis impact repeatability axis by.

2 Normative references

The following documents contain provisions which, through reference GB/T 18400 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 to this section, however, encouraged to reach under this section 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) Part 1990 for machine tool pallet Chapter 1.. ISO 8526-1 nominal size to 800mm workpiece pallet Workpiece pallet nominal size greater than 800mm of. ISO 8526-2:1990 for machine tool pallet - Part 2

3.1 Units of measurement

In this section all linear dimensions, tolerances and corresponding tolerances in millimeters (mm); the size of the angle in degrees (°), the angle Deviations and corresponding tolerance as a ratio, but in some cases for clarity available microradians (μrad) or arcsec (") indicates Expressions Equivalent relationship is as follows.

$$0.010/1000 = 10 \times 10^{-6} = 10\mu\text{rad} \sim 2''$$

3.2 Reference standard

When using this section, methods of measurement and inspection tools precision recommendation should refer to the geometric precision of GB/T 17421.1-1998. repeat Positioning accuracy and positioning accuracy of testing conditions shall refer to GB/T 17421.2-2000.

Axis represents 3.3

This section uses some common letters, these letters represent the following meanings.

--- M and N represent a horizontal axis machine tools. Reaching the direction of the pallet function, for horizontal machining center, M and N refers to the X-axis and Z axis (or Z-axis and X-axis) axis; for vertical machining center, M and N refers to the X-axis and Y-axis (or Y-axis and X-axis) axis;

--- P represents the vertical axis of the machine. On the horizontal machining center, P refers to the Y axis of the shaft; for vertical machining center, P refers to the Z axis Axis;