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

GB/T 4685-2007

Replacing GB/T 4685-1994

**External cylindrical grinding machines -- Testing of the
Accuracy**

外圆磨床 精度检验

(English Translation)

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Foreword

This standard is identical with ISO 2433:1999 "mobile worktable universal cylindrical grinding machine accuracy test Test conditions" (English Chinese Version).

This standard is equivalent translation ISO 2433:1999.

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

--- In order to be consistent with other standards, the standard name will be changed to "cylindrical grinding machine accuracy test";

- Remove the foreword and introduction of ISO 2433-1999;
- "This International Standard" be replaced by "this standard";
- With a decimal point instead of a decimal point, "";
- To ISO 2433:1999 and other international standards referenced with have been adopted in place of the corresponding international standard for our country standard;
- Increasing the reference standard GB/T 19660-2005;
- Remove the ISO 2433:1999 Foreword and Introduction;
- Deleted Chapter 1, "note" of the content;
- Remove the "Found bias" Tolerance a column;
- Delete the contents of "Appendix A" of;
- Remove the "reference standard." this standard replaces GB/T 4685-1994 "Cylindrical Grinder precision." Compared with GB/T 4685-1994, the main changes are as follows.
- Increased Chapter 2, "Normative references";
- Increased Chapter 3, "explained the terms and axis name";
- Added "Geometric tests" in the G2, G8, G9, G13, G14, G15, G16 entry canceled G1 items;
- Increased Chapter 7, "positioning accuracy and repeatability";
- Abolition of the "pre-tune test" content;
- Abolition of the "precision work" in the P3, P4, P5 items.

And supporting this standard criteria used are.

--- JB/T 7418.2-1994 "cylindrical grinding machine technical conditions." the standard proposed by China Machinery Industry Federation.

The standard metal cutting machine tools by the National Standardization Technical Committee (SAC/TC22) centralized.

This standard was drafted. Shanghai Machine Tool Works.

1 Scope

This standard specifies the general-purpose ordinary precision moving table type cylindrical grinding machine, universal cylindrical grinder cylindrical grinder and end of a few He accuracy, precision and positioning accuracy of the work axis repeated positioning accuracy of test methods and corresponding tolerance.

This standard applies to the maximum grinding diameter 50mm ~ 800mm, maximum grinding length of 150mm ~ 4000mm outside the ordinary level precision Grinder and universal cylindrical grinder and a maximum grinding diameter 50mm ~ 500mm, maximum grinding length of 150mm ~ 3000mm General Level precision face cylindrical grinding machine.

This standard applies only to machine accuracy test, does not apply to the operation to check the machine (such as climbing vibration, abnormal noise, moving parts Line, etc.), or machine-parametric tests (such as speed, feed rate, etc.). These tests should be carried out before the inspection accuracy.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

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 19660-2005 Industrial automation systems and integration - Numerical control of machines and motion coordinate system named (IDT841.2001, IDT)

3.1.1 Overview

This standard applies moving table type cylindrical grinding machine and universal cylindrical grinding machines, although similar to the two machine structures, but their work can differ.

Universal cylindrical grinding machine internal processing, outer cylindrical and conical surface. The cylindrical grinder can only process the outer cylindrical surface, and sometimes can be processed round tapered surface.

These two machines on the bed there are two basic linear motion, moving table (Z axis) and wheel carriage movement (X axis), and this Two movements at right angles to each other. However, some machine tool motion for the two intersecting oblique, these machines also known as face cylindrical grinding machine.

Cylindrical grinding machine and the main components of the universal cylindrical grinding machine as follows.

3.1.2 Bed

Bed with a worktable and wheel frame rail, and the rail is independent, usually into each other 90 °.

3.1.3 Lower table

Under the table is supported on the table, and can be moved along the rail bed (Z axis).

3.1.4 on the table

Working on stage with the headstock, tailstock and steady rest (if necessary), the workpiece may be supported between the headstock and tailstock. For universal circular Grinder on the table next to the rotary table, but not necessarily cylindrical grinder has swivel function. When no rotation, working Taiwan and the lower table can be made into one.

GB/T 4685-2007/ISO 2433:1999