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

GB/T 6476-2021

**Surface grinding machines with vertical grinding wheel spindle
and reciprocating table - Testing of the accuracy**

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foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules of Standardization Documents"

drafted:

This document replaces GB/T 6476-2007 "Accuracy of Vertical Shaft and Rectangular Table Surface Grinders", compared with GB/T 6476-2007, except for editorial

In addition to the changes, the main technical changes are as follows:

- Added the chapter "Parts and Axes of Vertical Axis and Rectangular Surface Grinders" (see Chapter 4);
- Added "machine tool leveling" (see 5:3);
- Added "Schematic" (see 5:7);
- Added "software compensation" (see 5:8);
- Modified "G2 inspection items" (see Chapter 6, G4a of Chapter 4 of the:2007 edition);
- Revised "Tolerance of G4" (see Chapter 6, G3 of Chapter 4 of the:2007 edition);
- Added "G7 inspection items" (see Chapter 6, Chapter 4 of the:2007 edition);
- Revised "Tolerances and inspection methods of G8" (see Chapter 6, G6 of Chapter 4 of the:2007 edition);
- Revised "Tolerances and inspection tools of G9" (see Chapter 6, G7 of Chapter 4 of the:2007 edition);
- Modified "G12 Inspection Items" (see Chapter 6, G11 of Chapter 4 of the:2007 edition);
- Added "Positioning Accuracy Inspection" chapter (see Chapter 7);

--- Added "Accuracy Inspection of Rotary Axis" (see Appendix A):

This document uses the redrafting method to modify and adopt ISO 1985:2015 "Vertical Axis and Rectangular Table Surface Grinder Inspection Conditions and Accuracy Inspection of Machine Tools":

A chapter "Terms and Definitions" has been added to this document:

The technical differences between this document and ISO 1985:2015 and their reasons are as follows:

--- In ISO 1985:2015 Chapter 1 "This standard specifies the terms and axes of the main components of machine tools with reference to ISO 841:2001:

"Name" was changed to "The coordinates and movement directions of the machine tool are named according to the provisions of GB/T 19660-2005", and moved to Chapter 4: At the same time

Include GB/T 19660-2005 in the list of normative references in Chapter 2:

--- Changed Chapter 3 of ISO 1985:2015 "Terms and Axis Nomenclature" to "Vertical Axis Rectangular Table Surface Grinder Components and Axis", deleted

In Table 1 of the international document, the content is adjusted to the description of the index number in Figure 1, and the relevant expressions are modified to conform to the specific conditions of our country:

condition:

--- Change "with reference to ISO 230-1, ISO 230-2 and ISO 230-7" to "according to ISO 230-1:2012, ISO 230-2 and ISO 230-7:

2015" (see 5:2):

--- Modified the tolerance of M1 in Chapter 8, and deleted "every 1000 increase in length, the tolerance increases by 0:01", and the horizontal axis moment table plane

The tolerance requirements of the grinding machine M1 are the same:

The following editorial changes have been made to this document:

--- Change the standard name to "Vertical Axis and Rectangular Table Surface Grinder Accuracy Inspection";

--- Modified the description of the chapter "Scope";

--- Modified the expression in the chapter "General Requirements" (see 5:2, 5:6 and 5:7);

--- Delete the "measured deviation" in the column of tolerance of each table;

--- Move the note in Chapter 4 to Figure 1;

--- The tables of Chapter 6, Chapter 7, Chapter 8 and Appendix A have added table numbers and table titles;

--- Deleted informative Appendix B:

Please note that some content of this document may be patented: The issuing agency of this document assumes no responsibility for identifying patents:

Introduction

The purpose of this document is to standardize the accuracy inspection method for general-purpose ordinary precision vertical axis and rectangular table surface grinders: The main

The function is to grind the plane of the workpiece: This document verifies the geometric accuracy and working accuracy of the machine tool for the purpose of realizing the main functions of the machine tool:

It is clearly stipulated, for example, the inspection of the straightness of the column movement (Y axis) in the horizontal XY plane (EXY) is from GB/T 6476-2007

Deleted because it is not directly related to the main function of the machine tool:
Introduced repeated positioning inspection in automatic mode (non-digital control), refer to ISO 230-1:2012:

In order to make the domestic vertical axis and rectangular table surface grinder have domestic standards corresponding to international standards, it was first formulated and released with reference to ISO 1985:1974:

GB/T 6476-1986, ISO 1985:1998 was adopted in the first revision in:2007, and ISO 1985:2015 was adopted in this revision:

Accuracy inspection of vertical axis and moment table surface grinder

1 Scope

This document specifies the geometric accuracy inspection and working accuracy inspection of vertical axis and rectangular table surface grinders for general purpose and ordinary accuracy: this document

Corresponding tolerances are specified for these inspections:

This document does not apply to surface grinders with fixed worktables or circular worktables, nor to surface grinders whose grinding heads move longitudinally:

This document is only used for the accuracy inspection of the machine tool, not for the operation inspection of the machine tool (such as vibration, abnormal noise, crawling of

moving parts)

etc:), and it is not suitable for the parameter inspection of the machine tool (such as speed, feed, etc:), these inspections are usually carried out before the accuracy inspection:

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text: Among them, dated citations

documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to this document:

GB/T 19660-2005 Industrial automation system and integrated machine tool numerical control coordinate system and motion naming (ISO 841:

2001, IDT)

ISO 230-1:2012 General rules for the inspection of machine tools - Part 1: Geometric accuracy of machine tools under no-load or quasi-static conditions (Testcode

formachinetools-Part

1:Geometricaccuracyofmachinesoperatingunderno-loadorquasi-staticcon-

divisions)

ISO 230-2 General rules for the inspection of machine tools - Part 2: Determination of positioning accuracy and repeatability of CNC axes (Testcodefor

machinetools-Part 2:Determinationofaccuracyandrepeatabilityofpositioningnumericallycon-
troledaxes)

ISO 230-7:2015 General rules for the inspection of machine tools - Part 7: Geometric accuracy of the axis of rotation (Testcodeformachinetools-

Part 7:Geometricaccuracyofaxesofrotation)

3 Terms and Definitions

There are no terms and definitions that need to be defined in this document:

4 Vertical axis surface grinder components and axes

Figure 1 shows the name and axis of the vertical axis and moment table surface grinder components: The coordinates and movement direction of the machine tool are in accordance with GB/T 19660-2005: