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

GB/T 3933-1983

Replacing GB/T 3933.2-2002, GB/T 21948.1-2008

**Test conditions for milling machines with table of variable
height - Testing of accuracy - Part 1: Machines with horizontal
spindle**

(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is Part 1 of GB/T 3933 "Inspection Conditions for Milling Machines with Lifting Tables". GB/T 3933 has already published the following parts.

---Part 1: Horizontal Milling Machines;

---Part 3: Vertical Milling Machines.

This document replaces GB/T 3933.2-2002 "Inspection Conditions for Milling Machines with Lifting Tables - Accuracy Inspection Part 2: Horizontal Milling Machines" and GB/T 21948.1-2008 "Inspection Conditions for CNC Milling Machines with Lifting Tables - Accuracy Inspection Part 1: Horizontal Milling Machines". This document is based on...

Based on GB/T 3933.2-2002, it integrates the content of GB/T 21948.1-2008. Compared with GB/T 3933.2-2002, except for the structure...

Aside from adjustments and editorial changes, the main technical changes are as follows.

---Added "Precision Inspection of CNC Horizontal Milling Machines" (see Chapter 1);

---Added "Naming and Brief Description of Axis Lines of Lifting Table Milling Machines" (see Chapter 4);

---G3 has been removed (see 5.1 in the 2002 version);

---Added G1~G13 related to the inspection accuracy tolerances of CNC milling machines with lifting tables (see Chapter 6);

---M2 has been added (see Chapter 7);

---M3 has been added (see Chapter 7);

---Appendix A has been added (see Appendix A).

This document is modified to adopt ISO 1701-1:2004 "Inspection conditions for milling machines with lifting tables - Accuracy inspection - Part 1: Horizontal milling machines".

This document has undergone the following structural adjustments compared to ISO 1701-1:2004.

---A new chapter, "Terms and Definitions," has been added. Chapters 3 and 4 correspond to Chapter 3 of ISO 1701-1:2004, with section 3.1 corresponding to...

ISO 1701-1:2004 sections 3.2, 4.1, and 4.2 correspond to ISO 1701-1:2004 sections 3.1 and 3.3.

---Chapter 5 corresponds to Chapter 4 of ISO 1701-1:2004;

---Chapter 6 corresponds to Chapter 5 of ISO 1701-1:2004;

---Chapter 7, "Verification of Positioning Accuracy and Repeatability," has been added;

---Chapter 8 corresponds to Chapter 6 of ISO 1701-1:2004.

The technical differences between this document and ISO 1701-1:2004, and the reasons therefor, are as follows.

---ISO 230-1:1996 (see 5.2, 5.7, Chapters 6-8) has been replaced by the normatively referenced GB/T 17421.1-2023.

There is no consistent correspondence between the documents, in order to adapt to my country's technical conditions and increase operability;

---The normative reference GB/T 17421.2-2023 (see 5.2, Chapter 7, Chapter 8) has been added to adapt to my country's technical conditions.

Add components to increase operability;

---The "Measured Deviation" column has been removed from the accuracy inspection table (see Chapters 5 and 6 of ISO 1701-1:2004) to better suit my needs.

The use of the country;

---The simplified diagram and axis naming of the milling machine with a universal swivel head shown in Figure 2 of ISO 1701-1:2004 are included as an informative appendix.

The test items for this type of test are given in Appendix B and are not covered in the main text.

---Item G3 of ISO 1701-1:2004 has been deleted (see Chapter 5 of ISO 1701-1:2004). This inspection is not applicable to machine tool structures in my country.

Test items;

---The single-column form in the simplified diagram of item G14 of ISO 1701-1:2004 (see Chapter 5 of ISO 1701-1:2004) has been deleted.

The type and testing methods are currently not applicable to domestic manufacturers;

---The inspection methods for inspection items G1~G14 have been modified (see Chapter 6) to improve operability;

---The accuracy verification clauses have been explained and refined (see Appendix A) to improve the operability of the judgment and eliminate ambiguity.

The following editorial changes have been made to this document.

---Appendix A (Informative) "Equivalent Terms in German, Italian, Dutch, Spanish and

Swedish" and Appendix B (Informative) have been deleted.

(Materials) "Equivalent terms in German, Italian, Dutch, Spanish, and Swedish";

---Added Appendix B (Informative) on milling machines with universal rotary heads.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the China Machinery Industry Federation.

This document is under the jurisdiction of the National Technical Committee on Standardization of Metal Cutting Machine Tools (SAC/TC22).

Introduction

GB/T 3933 "Inspection Conditions and Accuracy Inspection of Lifting Table Milling Machines" is an inspection standard for lifting table milling machines, establishing the standards for machine tool accuracy inspection.

Methods and requirements.

Milling machines with lifting tables have a wide range of applications, including vertical and horizontal milling, boring, drilling, and other multi-process machining, and are suitable for single-piece and small-batch production.

Production. Due to continuous technological advancements and improved processing techniques, existing standards are no longer adequate for current technological development needs.

Based on extensive research into the current state and market conditions, GB/T 3933-2002 has been revised to meet market demands and improve its quality.

The overall technical level of this type of machine tool.

GB/T 3933 is proposed to consist of the following two parts.

---Part 1: Horizontal Milling Machines. The purpose is to standardize the geometric accuracy, positioning accuracy, repeatability, and working accuracy of horizontal milling machines.

The testing method.

---Part 3: Vertical Milling Machines. The purpose is to standardize the geometric accuracy, positioning accuracy, repeatability, and working accuracy of vertical milling machines.

The testing method.

Inspection conditions for milling machines with lifting platforms. accuracy inspection Part 1: Horizontal Milling Machine