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

GB/T 34880.1-2025

Replacing GB/T 34880.1-2017

**Test conditions for 5-axis simultaneous machining centers -
Part 1: Testing of the accuracy for horizontal machine**

五轴联动加工中心检验条件 第1部分：卧式机床精度检验

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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 for standardization documents" Drafting.

This document is part 1 of GB/T 34880 "Test conditions for five-axis machining centers". GB/T 34880 has been published as follows part.

- Part 1: Accuracy inspection of horizontal machine tools;
- Part 2: Vertical machine tool accuracy inspection;
- Part 3: Technical conditions.

This document replaces GB/T 34880.1-2017 "Test conditions for five-axis machining centers Part 1: Precision test conditions for horizontal machine tools" Compared with GB/T 34880.1-2017, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

- a) The scope has been changed (see Chapter 1, Chapter 1 of the 2017 edition);
- b) The requirements of the implementation standard have been changed (see 4.2, 4.2 of the 2017 edition);
- c) Changed the requirements for inspection tools (see 4.5, 4.5 of the 2017 edition);
- d) Added the requirements for tool center point following function (RTCP) accuracy inspection (see 4.6);
- e) The requirements for the type of test piece have been changed (see 4.7, 4.6 of the 2017 edition);
- f) Changed the requirements for software compensation (see 4.9, 4.10 of the 2017 edition);
- g) The content of the diagram has been changed (see 4.11, 4.8 of the 2017 edition);
- h) Added requirements for the position of non-test axes (see 4.10);
- i) The requirements for pallets have been changed (see 4.12, 4.9 of the 2017 edition);
- j) Added requirements for inspection environmental conditions (see 4.13);
- k) The minimum tolerance requirements have been changed (see 4.16, 4.13 of the 2017 edition);
- l) Modified the tolerance requirements and inspection methods for all inspection items, and added the tolerance requirements for M-class machine tools (see Chapter 5,

Appendix A , AG1 to AG7, and Appendix B, Chapter 5 and Appendix A of the 2017 edition);

m) Added additional geometric accuracy inspection requirements for AB swing rotary table machine tools (see AG8 to AG21 in Appendix A).

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the 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 for Standardization of Metal Cutting Machine Tools (SAC/TC22).

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Introduction

The five-axis machining center has the advantages of processing complex surfaces, improving processing accuracy and efficiency, and its precision performance directly affects the product Quality and processing capabilities. With the advancement of technology and the improvement of processing technology, the performance of five-axis linkage machining centers is also constantly improving. In order to adapt to our This document has been revised to reflect the demand for technological advancement of five-axis machining centers driven by the high-end development of China's machine tools and the transformation and upgrading of its manufacturing industry.

GB/T 34880 consists of three parts.

- Part 1: Horizontal machine tool precision inspection. The purpose is to establish the inspection requirements for the factory inspection of five-axis horizontal machining centers. Projects and requirements.
- Part 2: Vertical machine tool precision inspection. The purpose is to establish the inspection requirements for the five-axis linkage vertical machining center during factory inspection. Projects and requirements.
- Part 3: Technical conditions. The purpose is to establish the test to ensure the performance and quality of the five-axis linkage machining center during the manufacturing process Projects and corresponding requirements.

This document is the first part of GB/T 34880, which mainly specifies the geometric accuracy, positioning accuracy and weight of five-axis horizontal machining centers.

The inspection requirements, inspection methods and corresponding tolerances of positioning accuracy and working accuracy can be used for five-axis joint machining of ordinary and precision grades.

Provide basis and guidance for the design, manufacture, inspection and acceptance of automatic machining centers.

Five-axis machining center inspection conditions Part 1: Accuracy testing of horizontal machine tools