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# Machine tools — Test conditions for surface grinding machines with vertical grinding wheel spindle and reciprocating table — Testing of the accuracy

*Machines-outils — Conditions d'essai des machines à rectifier les surfaces planes, à broche porte-meule à axe vertical et à table à mouvement alternatif — Contrôle de l'exactitude*

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# Contents

Page

**Foreword** ... **iv**

**Introduction** ... **v**

**1 Scope** ... **1**

**2 Normative references** ... **1**

**3 Terminology and designation of axes** ... **1**

**4 Preliminary remarks** ... **3**
4.1 Measurement units ... 3
4.2 Reference to ISO 230-1, ISO 230-2, and ISO 230-7 ... 3
4.3 Machine levelling ... 3
4.4 Testing sequence ... 3
4.5 Tests to be performed ... 3
4.6 Measuring instruments ... 3
4.7 Diagrams ... 3
4.8 Software compensation ... 4
4.9 Minimum tolerance ... 4
4.10 Machining test ... 4

**5 Geometric tests** ... **5**
5.1 Linear axes ... 5
5.2 Table ... 12
5.3 Spindle ... 14

**6 Positioning tests** ... **17**
6.1 Positioning of manual or automatic (but not numerically controlled) linear axes ... 17
6.2 Positioning of numerically controlled linear axis ... 18

**7 Machining tests** ... **19**

**Annex A** (informative) **Tests for checking accuracy of axes of rotation** ... **21**

**Annex B** (informative) **Equivalent terms in German, Italian, Persian, and Japanese** ... **23**

**Bibliography** ... **24**

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# Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: Foreword — Supplementary information.

The committee responsible for this document is ISO/TC 39, *Machine Tools*, Subcommittee SC 2, *Test Conditions for Metal Cutting Machine Tools.*

This fourth edition cancels and replaces the third edition (ISO 1985:1998), which has been technically revised.


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# Introduction

The purpose of this International Standard is to standardize methods of testing the accuracy of general purpose and normal accuracy surface grinding machines with vertical grinding wheel spindle and reciprocating table.

The primary function of such machines is to provide flat surfaces on workpieces. This International Standard specifies the tests to verify the geometric accuracy of the machine to achieve this primary function. For example, the test to check the straightness of the column movement (Y-axis) in the horizontal XY-plane ($E_{XY}$) is removed from ISO 1985:1998, since it is not directly correlated to this primary function.

Positioning repeatability test for automatic mode (Not NC) is introduced. References to ISO 230-1 are revised and referred to 2012 edition.

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# Machine tools — Test conditions for surface grinding machines with vertical grinding wheel spindle and reciprocating table — Testing of the accuracy

## 1 Scope

This International Standard specifies, with reference to ISO 230-1 and ISO 230-7, both geometric and machining tests on general purpose, normal accuracy, manually, and numerically controlled (NC) surface grinding machines with reciprocating table and vertical grinding wheel spindle. It also specifies the applicable tolerances corresponding to the above-mentioned tests.

This International Standard is not applicable to surface grinding machines with fixed or rotating tables or to machines having longitudinal traverse of the wheelhead.

This International Standard deals only with the verification of the geometric accuracy of the machine. It does not apply to the testing of the machine operation (vibrations, abnormal noises, stick-slip motion of components, etc.), nor to the checking of its characteristics (such as speeds, feeds, etc.), which should generally be checked before testing the accuracy. This International Standard provides the terminology used for the principal components of the machine and the designation of the axes with reference to ISO 841:2001.

NOTE In addition to the terms used in the official ISO languages (English and French), this International Standard gives the equivalent terms in the German, Italian, Persian, and Japanese languages in Annex B; these are published under the responsibility of the national member bodies for Germany (DIN), Italy (UNI), Iran (ISIRI), and Japan (JISC). However, only the terms given in the official language can be considered as ISO terms.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 230-1:2012, *Test code for machine tools — Part 1: Geometric accuracy of machines operating under no-load or quasi-static conditions*

ISO 230-2, *Test code for machine tools — Part 2: Determination of accuracy and repeatability of positioning numerically controlled axes*

ISO 230-7:—[1)], *Test code for machine tools — Part 7: Geometric accuracy of axes of rotation*

## 3 Terminology and designation of axes

See Figure 1 and Table 1.

NOTE Some machines do not have the Y-axis.

1) To be published.

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