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Second edition
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Test conditions for machining centres —

Part 7: Accuracy of finished test pieces

Conditions d'essai pour centres d'usinage —

Partie 7: Exactitude des pièces d'essai usinées



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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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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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 second edition cancels and replaces the first edition, which has been technically revised.

ISO 10791 consists of the following parts, under the general title *Test conditions for machining centres*:

- *Part 1: Geometric tests for machines with horizontal spindle and with accessory heads (horizontal Z-axis)*
- *Part 2: Geometric tests for machines with vertical spindle or universal heads with vertical primary rotary axis (vertical Z-axis)*
- *Part 3: Geometric tests for machines with integral indexable or continuous universal heads (vertical Z-axis)*
- *Part 4: Accuracy and repeatability of positioning of linear and rotary axes*
- *Part 5: Accuracy and repeatability of positioning of work-holding pallets*
- *Part 6: Accuracy of speeds and interpolations*
- *Part 7: Accuracy of finished test pieces*
- *Part 8: Evaluation of contouring performance in the three coordinate planes*
- *Part 9: Evaluation of the operating times of tool change and pallet change*
- *Part 10: Evaluation of thermal distortions*

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Introduction

A machining centre is a numerically controlled machine tool capable of performing multiple machining operations, including milling, boring, drilling, and tapping, as well as automatic tool changing from a magazine or similar storage unit in accordance with a machining programme. Most machining centres have facilities for automatically changing the direction in which the workpieces are presented to the tool.

The purpose of ISO 10791 (all parts) is to supply information as wide and comprehensive as possible on tests and checks which can be carried out for comparison, acceptance, maintenance, or any other purpose.

This International Standard specifies, by reference to the relevant parts of ISO 230, several families of tests for machining centres with horizontal or vertical spindle or with universal heads of different types, standing alone, or integrated in flexible manufacturing systems. This International Standard also establishes the tolerances or maximum acceptable values for the test results corresponding to general purpose and normal accuracy machining centres.

This International Standard is also applicable, totally, or partially, to numerically controlled milling and boring machines, when their configuration, components, and movements are compatible with the tests described herein.