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Second edition
2023-04

Test conditions for machining centres —

Part 2: Geometric tests for machines with vertical spindle (vertical Z-axis)

Conditions d'essai pour centres d'usinage —

Partie 2: Essais géométriques des machines à broche verticale (axe Z vertical)



Reference number
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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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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 39, *Machine tools*, Subcommittee SC 2, *Test conditions for metal cutting machine tools*.

This second edition cancels and replaces the first edition (ISO 10791-2:2001), which has been technically revised.

The main changes are as follows:

- Tests applying to all configurations of machines have now been grouped in [Clause 5](#) (tests G5.1 to G5.14).
- Tests for optional horizontal spindles and integral or accessory spindle heads forming the object of [Annexes A](#) through [C](#) in the first edition of this document, have been deleted and will be covered by a more general standard, as they are not only used in machining centres.
- Tests for the movements of four types of work holding tables have been introduced, respectively as [Clauses 6, 7, 8](#) and [9](#), as explained in [4.5](#) and [Table 1](#).
- Three new [Annexes A, B](#) and [C](#) have been introduced, dealing with error motion of rotary axes belonging to spindles and to rotary and tilting tables.
- The test of the table flatness (formerly G15) has been deleted for several reasons, including:
 - the table surface is not normally used as a reference for the location of the workpiece;
 - sometimes, the machine is supplied with some fixtures already mounted on the table;
 - sometimes, the machine is provided with a receiver where several pallets can be mounted;
 - for tests made during the working life of the machine, the table surface can be unsuitable for accurate measurements, mostly on large machines.

A list of all parts in the ISO 10791 series can be found on the ISO website.

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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 program.

The object of the ISO 10791 series is to provide information as widely and comprehensively as possible on tests which can be carried out for comparison, acceptance, maintenance or any other purpose deemed necessary by user or manufacturer/supplier.