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Test conditions for die sinking electro-discharge machines (die sinking EDM) — Testing of the accuracy —

Part 2: Double-column machines (slide-head type)

Conditions d'essai des machines d'électroérosion en plongée (EDM en plongée) — Contrôle de l'exactitude —

Partie 2: Machines à deux montants (type à tête mobile)

Reference number
ISO 11090-2:2014(E)

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Contents

Page

Foreword ... **iv**

Introduction ... **v**

1 Scope ... **1**

2 Normative references ... **1**

3 Terms and definitions ... **1**

4 Terminology and designation of axes ... **2**
4.1 Slide-head type ... 2

5 Preliminary remarks ... **3**
5.1 Measurement units ... 3
5.2 Reference to ISO 230-1 ... 3
5.3 Machine levelling ... 3
5.4 Testing sequence ... 3
5.5 Tests to be performed ... 3
5.6 Measuring instruments ... 4
5.7 Software compensation ... 4
5.8 Minimum tolerance ... 4
5.9 Machining test ... 4
5.10 Positioning tests and reference to ISO 230-2 ... 4

6 Geometric tests ... **5**
6.1 Linear axes of motion ... 5
6.2 Table ... 12
6.3 Head, quill and spindle ... 14

7 Positioning tests for numerically controlled axes ... **17**

8 Machining test ... **21**

Annex A (informative) **Equivalent terms in Dutch, German, Italian, Swedish, Persian, and Japanese** ... **22**

Bibliography ... **23**

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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).

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

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 (ISO 11090-2:1998), which has been technically revised.

ISO 11090 consists of the following parts, under the general title *Test conditions for die sinking electro-discharge machines (die sinking EDM) — Testing of the accuracy*:

— *Part 1: Single-column machines (cross-slide table type and fixed table type)*

— *Part 2: Double-column machines (slide-head type)*

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Introduction

The purpose of this part of ISO 11090 is to standardize methods of testing normal accuracy and general-purpose die sinking electro-discharge machines (die sinking EDM).

In this part of ISO 11090, the tolerances for G1, G2, G3, G5, P1, P2, P3, and P4 have been changed from those in ISO 11090-2:1998.

The machine axis designations are changed from ISO 11090-2:1998 to comply with ISO 841:2001.

Cross-slide table type machines (ISO 11090-2:1998, 3.2) are deleted due to their limited availability in today's market. The following tests in ISO 11090-2:1998 are deleted due to the limited availability of the reference T-slot in typical machines in today's market: G9 (checking of straightness of the reference T-slot or reference surface of the table) and G10 (checking of parallelism between the reference T-slot or reference surface of the table and the x-axis motion).

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Test conditions for die sinking electro-discharge machines (die sinking EDM) — Testing of the accuracy —

Part 2: Double-column machines (slide-head type)

1 Scope

This part of ISO 11090 specifies, with reference to ISO 230-1 and ISO 230-2, geometric and machining tests and tests for checking accuracy and repeatability of numerically controlled positioning axes for normal accuracy and general-purpose die sinking electro-discharge machines (die sinking EDM). It also specifies the applicable tolerances corresponding to the above-mentioned tests.

This part of ISO 11090 is applicable to double-column machines of slide-head type.

This part of ISO 11090 deals only with the verification of accuracy of the machine. It does not apply to the testing of the machine operation (vibrations, abnormal noises, stick-slip motion of components, etc.) or to the checking of its characteristics (such as speeds, feeds, etc.), which should generally be checked before the testing of the accuracy.

This part of ISO 11090 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), Annex A of this part of ISO 11090 gives the equivalent terms in the Dutch, German, Italian, Swedish, Persian, and Japanese languages. These are published under the responsibility of the national member bodies for Netherlands (NEN), Germany (DIN), Italy (UNI), Sweden (SIS), Iran (ISIRI), and Japan (JISC). However, only the terms given in the official languages can be considered as ISO terms.

2 Normative references

The following referenced documents in whole or in part, are normatively referenced in this document and are indispensable for the application of this document. 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 230-2:2014, *Test code for machine tools — Part 2: Determination of accuracy and repeatability of positioning of numerically controlled axes*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
electro-discharge machines
machine tools for the removal of material in dielectric fluid by electro-discharges, which are separated in time and randomly distributed in space, between two electrically conductive electrodes (the tool electrode and the workpiece electrode), and where the energy in the discharge is controlled

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