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Test conditions for wire electrical-discharge machines (wire EDM) — Testing of the accuracy

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National foreword

This British Standard is the UK implementation of ISO 14137:2015. It supersedes BS ISO 14137:2000 which is withdrawn.

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INTERNATIONAL STANDARD

ISO 14137

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Conditions d'essai des machines d'électroérosion à fil (fil EDM) — Contrôle de l'exactitude

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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 second edition cancels and replaces the first edition (ISO 14137:2000), which has been technically revised.

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Introduction

The purpose of this International Standard is to standardize methods of testing normal accuracy and general-purpose wire electro-discharge machines (wire EDM).

In this International Standard, the tolerances for G1, G2, G3, G4, P1, P2, P3, P4, and P5 have been changed from those in ISO 14137.

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INTERNATIONAL STANDARD ISO 14137:2015(E)

Test conditions for wire electrical-discharge machines (wire EDM) — Testing of the accuracy

1 Scope

This International Standard specifies, with reference to ISO 230-1, ISO 230-2, and ISO 230-4, geometric tests, tests of accuracy and repeatability of numerically controlled positioning axes, machining test and circular test for general purpose and normal-accuracy wire electro-discharge machines (wire EDM). It also specifies the applicable tolerances, corresponding to the above-mentioned tests.

This International Standard is applicable to cross-slide table type machines and double-column type machines.

This International Standard 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.) nor to the checking of its characteristics (such as speeds, feeds, etc.), which should generally be checked before the testing of 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.

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, *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 of numerically controlled axes*

ISO 230-4, *Test code for machine tools — Part 4: Circular tests for numerically controlled machine tools*

ISO 841, *Industrial automation systems and integration — Numerical control of machines — Coordinate system and motion nomenclature*

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

3.2
wire electro-discharge machines
machine tools for the removal of material by electro-discharge machining through the application of a wire electrode to produce prismatic and more complex shapes in a workpiece

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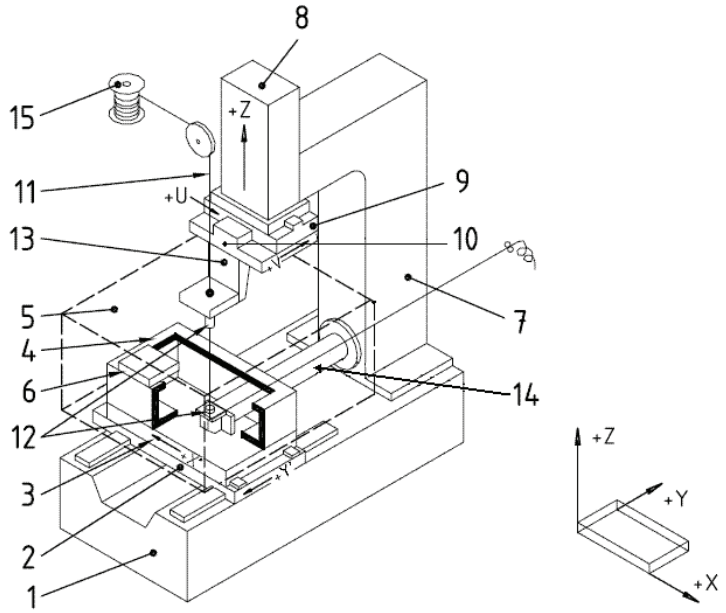
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3.3
die sinking electro-discharge machines
machine tools for the removal of material by electro-discharge machining through the application of a tool electrode whose geometry matches (defines) the desired shape of the workpiece feature

4 Terminology and designation of axes

4.1 Cross-slide table type

See Figure 1 and Table 1.



NOTE Key: see Table 1

Figure 1 — Cross-slide table type machine

Table 1 — Nomenclature for cross-slide table type machine (see Figure 1)

Key	English	French
1	bed	banc
2	saddle (Y-axis)	trainard (axe Y)
3	table (X-axis)	table (axe X)
4	workholding frame	cadre de bridage
5	work tank (cover)	bac de travail
6	workpiece	pièce à usiner
7	column	montant
8	head (Z-axis)	tête (axe Z)
9	U saddle (U-axis)	trainard U (axe U)
10	V saddle (V-axis)	trainard V (axe V)
11	wire electrode	fil électrode
12	wire guide	guide-fil
13	upper guide support	support guide-fil supérieur

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