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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 23480.1-2009

Replacing GB/T 23480.1-2009, GB/T 23480.2-2009

**Small hole drilling electrical discharge machines - Testing of
the accuracy**

(English Translation)

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document replaces GB/T 23480.1-2009 "Electro-spark small hole high-speed machining machine tools Part 1: Terminology and accuracy inspection" and GB/T 23480.2-2009 "Electro-spark small hole high-speed machining machine tools Part 2: Parameters", GB/T 23480.1-2009, Compared with GB/T 23480.2-2009, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

a) The machine tool type has been modified (see 4.1 and Figure 1, Chapter 3 of GB/T 23480.1-2009);

- b) Added standard instructions for machine tool leveling, diagrams, and software compensation (see 5.3, 5.6, and 5.7);
- c) The tolerance values corresponding to the accuracy test items have been changed (see Chapter 6 to Chapter 8, Chapter 5 to Chapter 7 of GB/T 23480.1-2009).
chapter);
- d) Added the inspection of the spindle (Z axis) motion straightness, the spindle head (W axis) motion straightness, and the guide installation hole axis.

Geometric accuracy test items such as coaxiality inspection with the electrode rotating axis (see Chapter 6);

- e) Added positioning accuracy inspection functions such as positioning accuracy, repeated positioning accuracy and positioning reverse difference inspection for CNC W-axis and Z-axis motion.

Test items (see Chapter 7);

- f) Added the normative appendix "Special inspection tools and inspection rods" (see Appendix A);
- g) The machine tool parameter table (see Chapter 4 of GB/T 23480.2-2009) has been deleted.

1 Scope

This document specifies the type and parameters, geometric accuracy, positioning accuracy and working accuracy of EDM small hole machining machines, as well as the requirements related to the above-mentioned accuracy.

The tolerance value corresponding to the degree detection.

This document is applicable to the detection of the accuracy of EDM small hole machining machines.

This document only covers the detection of machine tool accuracy and is not applicable to machine tool operation tests (vibration, abnormal noise, creeping of parts, etc.) and other Checks on parameters (such as speed, feed rate, etc.) are usually performed before precision testing.

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date

applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to this document.

GB/T 14896.1 Terminology of special processing machine tools Part 1: Basic terms GB/T 14896.2 Terminology of special processing machine tools Part 2: Electrical discharge machining machine tools GB/T 17421.1-2023 General rules for machine tool inspection Part 1: Geometric accuracy of machine tools under no-load or quasi-static conditions GB/T 17421.2-2023 General rules for machine tool inspection Part 2: Determination of positioning accuracy and repeatability of CNC axes GB/T 19660 Industrial automation systems and integrated machine tool numerical control coordinate systems and motion nomenclature GB/T 19764 Guide for the selection of priority numbers and priority number integer series

3 Terms and definitions

The terms and definitions defined in GB/T 14896.1 and GB/T 14896.2 apply to this document.

4 Types and parameters

4.1

The structure of the EDM small hole machining machine (hereinafter referred to as the "machine tool") is shown in Figure 1. The coordinate system and main motion axes of the machine tool are named according to the provisions of GB/T 19660.

4.2

The main parameters of the machine tool should include.

- Work surface width,
- Working table length,
- Distance from guide to work surface,
- X axis travel,
- Y axis travel,
- Z axis travel,
- W axis travel.

4.3

When designing machine tools, the priority number system should be used for the main parameters listed in 4.2 according to the provisions of GB/T 19764, and the common ratio should be selected according to 1.25.

Rounded value.