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Calibration Specification for Magnetic Measuring Instruments for Permanent Magnet Materials

永磁材料磁性测量仪校准规范

(English Translation)

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Introduction

This specification is based on JJF 1059.1-2012 "Evaluation and Expression of Measurement Uncertainty", JJF 1071-2010 "National Compilation of "Rules for Compiling National Metrology and Calibration Specifications.

This specification is released for the first time.

Calibration specification for magnetic measuring instrument for permanent magnet materials

1 Scope

This specification is applicable to the calibration of permanent magnetic material magnetic measuring instrument based on the normal temperature scanning method of electromagnet.

The measurement characteristics and calibration methods of the material magnetic measuring instrument.

2 Reference documents this specification refers to the following documents.

JJG352 Permanent Magnetic Material Standard Sample Magnetic Properties Trial Verification Regulation JJG872 Magnetic Flux Standard Measuring Coil JJG2021 Verification System for Magnetic Flux Measuring Instruments JJF 1013 Commonly Used Terms and Definitions in Magnetic Metrology (Trial) JJF 1094 Evaluation of Characteristics of Measuring Instruments JJF 1832 (1mT~2.5T) Magnetometer Calibration Specification GB/T 3217-2013 Permanent magnetic (hard magnetic) material magnetic test method for dated reference documents, only the dated version applies to this specification; for undated references the latest version (including all amendments) is applicable to this specification.

3 Terms and units of measurement the terms defined in JJF 1013 and the following apply to this specification.

3.1 Coil constant constantofsearchingcoil the product of the number of turns and the area of the coil, the symbol is recorded as K, the unit. square meter (m2).

3.2 Magnetic field inhomogeneityofelectromagnet the absolute value of the relative deviation between the magnetic field strength in a certain area of the center of the electromagnet pole face and the magnetic field strength at the center.

Make delta.

4 overview

Permanent magnet material magnetic measuring instrument (hereinafter referred to as magnetic measuring instrument) is also called BH instrument (BHtracer), hysteresis loop measuring instrument Measuring instrument (hysteresisgraph) and so on, its composition is

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shown in Figure 1.The magnetizing power supply and electromagnet form a magnetizing device, Change the direction of the magnetic field through the change-over switch S to magnetize and demagnetize the sample under test. Magnetized power supply outputs continuously changing electricity the current generates a magnetic field between the poles of the electromagnet, and the quasi-static scanning method is used to slowly change the current during the measurement process to avoid the measurement.

A vortex is generated in the sample during measurement. The B (or J) coil is connected to the B (or J) channel flux meter to measure the magnetic flux Density B (or magnetic polarization intensity J); H probe can be Hall probe or H coil, used to measure magnetic field intensity H.

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