

JJG

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Magnetic and Eddy Current Measuring Instrument for Coating Thickness (English Translation)

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1 Scope

This Regulation specifies the first inspection, subsequent inspection, and in- service inspection of magnetic (magneto-resistive and magnetic-driven) and eddy current measuring instrument for coating thickness (hereinafter referred to as thickness measuring instrument).

2 Normative references

This Regulation referred to the following referenced documents.

GB/T 4956-2003, On-magnetic coatings on magnetic substrates -

Measurement of coating thickness - Magnetic method

GB/T 4957-2003, Non-conductive coatings on non-magnetic basis metals -

Measurement of coating thickness - Eddy current

For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

3 Overview

The magnetic measuring instrument for coating thickness in the thickness measuring instrument is usually used to measure the thickness of non-magnetic coating on magnetic metal substrate. The eddy current measuring instrument for coating thickness is usually used to measure the thickness of non-magnetic coating on non-magnetic metal substrate.

4.1 Measuring force and its variability

The measuring force of the probe of thickness measuring instrument. (0.3~1.5)

N. The variability of measuring force shall not exceed $1/3 F$, where F is the average of 10 measured forces.

4.2 Measurement repeatability

The measurement repeatability of thickness measuring instrument shall not exceed the one specified in Table 1.

4.6 Thickness sheet

See Table 1 for the uncertainty and uniformity of the thickness measurement results of thickness sheet.

5.1 Appearance

5.1.1

The designation of thickness measuring instrument shall be marked with instrument name, model, number, manufacturer name (or logo).

5.1.2

The appearance of thickness measuring instrument shall be neat, without obvious scratches, rust, damage, blistering, peeling of paint film. The surface of thickness sheet shall not be severely scratched or damaged.

5.2 Interaction of each part

5.2.1

The pointer movement of the indicator is smooth, without jamming, sticking needles, crawling, etc.

5.2.2

The connection of connectors is reliable and convenient to use. All operation switches, knobs, keys and indicators work reliably and effectively.

Fasteners must not be loose or defective.

5.2.3

The functions of thickness measuring instrument shall work reliably and effectively.

6 Control of measuring tools

The control of measuring tools includes first inspection, subsequent inspection and in-service inspection.

6.1.2 Verification equipment

See Table 3 for main verification equipment.

6.2 Verification items and main verification apparatus

See Table 3 for verification items.

6.3.1 Appearance

Visual observation.

6.3.2 Interaction between each part

Visual observation and manual test.

6.3.5 Indicated value error

Conduct the zero-point adjustment of thickness measuring instrument according to the instructions of use.

6.3.6 Indicated value stability

Select the minimum range stop of the thickness measuring instrument for the

AC-powered thickness measuring instrument. Place a thickness sheet with a value greater than $1/2$ of the range near the center of the working surface of the substrate. Mount the probe on the verification table and press it vertically towards the thickness sheet and make it fixed. Record the first reading. Take a reading every 15min later. Continuously record for 1h. Take the difference between the maximum and minimum values in 5 readings as the measurement result.

7 Processing of verification results

When all verification items of the thickness measuring instrument meet the corresponding requirements of this Regulation, fill out the verification certificate and indicate the accuracy level.

8 Verification cycle

Verification cycle shall be determined according to actual use. It usually does not exceed 1 year.

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