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NATIONAL METROLOGY TECHNICAL SPECIFICATION OF THE

PEOPLE'S REPUBLIC OF CHINA

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Calibration Specification for Bimetal Thermometer

双金属温度计校准规范

(English Translation)

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Preview: page 1 of 4 shown, 12 in the full document. Complete English PDF, instant download:
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Table of Contents

1 Scope(1)
2 References (1)
3 Terms (1)
4 Overview(1)
5 Metrology Characteristics(2)
5.1 Indication error(2)
5.2 Angle adjustment error(2)
5.3 Setpoint error(2)
5.4 Switching difference(2)
5.5 Insulation resistance(2)
6 Calibration Conditions(3)
6.1 Environmental conditions (3)
6.2 Standard device and ancillary equipment (3)
7 Calibration items and calibration methods (3)
7.1 Calibration and inspection items (3)
7.2 Calibration method(4)
7.3 Data processing(5)
8 Expression of calibration results (6)
9 Recalibration interval(6)
Introduction

9 Recalibration interval(6)

Appendix A Calibration Record Reference Format(7)

Appendix B Calibration Certificate Results Inner Page Reference Format (8)

Appendix C Example of Uncertainty Evaluation of Indication Error of Bimetal Thermometer (9)

Appendix D Example of Uncertainty Evaluation of Set Point Error of Electric Contact Bimetal Thermometer (12)

Preview: page 2 of 4 shown, 12 in the full document. Complete English PDF, instant download:
https://chinastandards.org/standards/jjf-1908-2021

Introduction

This specification is compiled in accordance with JJF 1071-2010 "Rules for Compilation of National Metrology and Calibration Specifications".

JJF 1059.1-2012 "Measurement Uncertainty Evaluation and Representation" requires evaluation of uncertainty, refer to in JJF 1007-2007 "Terminology and Definition of Thermometer" and JB/T 8803-2015 "Bimetal Thermometer" related definitions and technical content.

This specification replaces JJG226-2001 "Bimetal Thermometer". Compared with JJG226-2001, except for editorial revisions the main technical changes are as follows.

--- Delete the calibration requirements for hysteresis, indication repeatability, switching repeatability and thermal stability;

--- The calibration standard was updated;

---The technical requirements for constant temperature equipment have changed;

--- Reduce the degree of deviation of the actual temperature of the constant temperature bath from the calibration point during the calibration process;

---Simplifies the calibration method of the set point error of the electric contact thermometer;

--- Reduced the temperature control rate of the constant temperature bath during the calibration process of the set point error;

--- Added the calculation formula of standard platinum resistance thermometer as the measurement standard;

--- An example of uncertainty assessment for calibration of indication error has been updated in the appendix;

--- An example of uncertainty assessment for set point error calibration has been added to the appendix.

The previous releases of this specification are as follows.

---JJG226-2001;

---JJG226-1989.

Bimetal Thermometer Calibration Specifications

1 Scope

This specification applies to the calibration of bimetal thermometers with a measurement range of (-80~500) °C.

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2 Reference documents this specification references the following documents.

JB/T 8803-2015 Bimetal Thermometer for dated references, only the dated version applies to this specification; for undated references the latest version (including all amendments) applies to this specification.

3 Terminology

The terms and definitions defined in JB/T 8803-2015 and the following apply to this specification.

A bimetal thermometer that can adjust the angle (0°~90°) between the indicating device and the axis of the detection element.

[Source. JB/T 8803-2015, 3.1] A bimetal thermometer with electrical contacts.

[Source. JB/T 8803-2015, 3.2]

4 Overview

Bimetal thermometer is a temperature instrument suitable for medium and low temperature measurement. It uses two kinds of pure gold with different expansion coefficients.

Metal sheets or alloy sheets are firmly combined to form a temperature sensing element, which is generally wound into a spiral shape, one end of which is fixed, and the other end is fixed.

(Free end) is equipped with a pointer. When the temperature changes, the curvature of the temperature sensing element changes, and the free end rotates to drive the pointer.

The temperature value is indicated on the dial. A protective sleeve is installed on the outside of the temperature sensing element of the bimetal thermometer, and the dial is round.

Its typical structure is shown in Figure 1.

Fig. 1 Schematic diagram of typical structure of bimetal thermometer

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