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NATIONAL METROLOGY TECHNICAL SPECIFICATION OF THE

PEOPLE'S REPUBLIC OF CHINA

JJF 1909-2021

Calibration Specification for Pressure Thermometer

压力式温度计校准规范

(English Translation)

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Introduction

JJF 1007-2007 "Terminology and Definition of Thermometers", JJF 1071-2010 "National Standards for Metrology and Calibration" Compilation Rules" and JJF 1059.1-2012 "Measurement Uncertainty Evaluation and Representation" together constitute the support for the revision of this specification A basic set of specifications for work.

This specification replaces JJG310-2002 "Pressure Thermometer", compared with JJG310-2002, except for editorial revisions the main technical changes are as follows.

--- Modified the scope of application;

--- Delete the calibration requirements for "repeatability" and "indication hysteresis";

--- Modified the standard for calibration;

---Modified the technical index requirements of constant temperature equipment;

--- Modified the tolerance calculation of steam pressure thermometer;

--- Simplifies the calibration requirements for set point errors;

--- Added an example of the measurement uncertainty evaluation of the set point error.

The previous releases of this specification are as follows.

---JJG310-2002;

---JJG310-1983.

Specification for calibration of pressure thermometers

1 Scope

This specification applies to circular-scale steam pressure thermometers with a measurement range of (-30~200) °C.

Circular scale gas pressure thermometer with a temperature range of (-80~600)°C, liquid measuring range within a range of (-40~250)°C Calibration of body pressure thermometers.

2 Reference documents this specification references the following documents.

JB/T 9259-1999 steam and gas pressure thermometer for dated references, only the dated version applies to this specification; for undated references software, the latest edition (including all revisions) of this specification applies.

3 Terminology

The terms and definitions defined in JB/T 9259-1999 and the following apply to this specification.

The temperature measurement system part is filled with a pressure thermometer with

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evaporating liquid (temperature sensing medium).

[Source. JB/T 9259-1999, 3.1] A pressure thermometer that is fully filled with gas (temperature sensing medium) in the temperature measurement system.

[Source. JB/T 9259-1999, 3.2] A pressure thermometer that is fully filled with liquid (temperature sensing medium) in the temperature measurement system.

Pressure thermometers with microswitches or mechanical electrical contact devices.

The absolute value of the difference between the two measurement limits of the measuring range.

3.6 switching median value switchingmeanvalue the average value of the actual temperature values corresponding to the electrical contact pressure thermometer contacts when the contacts are turned on and off.

3.7 Set point error setvalueerror the difference between the switching median value and the set value of the electric contact pressure thermometer.

3.8 switching error the absolute value of the difference between the actual temperatures when the electrical contact pressure thermometer is turned on and off.

4 Overview

4.1 Working principle of pressure thermometer the pressure thermometer works according to the principle that the pressure of the temperature sensing medium inside the temperature measurement system changes with the temperature.

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