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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 20728-2021

Measurement of fluid flow in closed conduits - Guidance to the selection, installation and use of Coriolis flowmeters

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 20728-2006 "Selection, installation and use of Coriolis flowmeters for measurement of fluid flow in closed pipes"

User Guide. Compared with GB/T 20728-2006, the main technical changes are as follows.

---Modified the expression of "scope" (see Chapter 1);

---Modified the definition of the terms "repeatability", "measurement uncertainty" and "error" (see 3.2.1, 3.2.2, 3.2.3);

--- Deleted the terms "flow calibration coefficient", "density calibration coefficient", "relative humidity", "blocked flow", "shock wave", and "critical nozzle" (see.2006

Version 2.9.1, 2.9.2, 2.14, 2.15, 2.16, 2.17);

---The term "calibration" has been added (see 3.2.4);

---Added the symbols and abbreviations used in this standard (see 3.3, 3.4);

---Deleted the accuracy content (see the.2006 version of 3.2, 5.2, 6.4, 7.3);

---Modified the description of the influence of "multiphase flow" (see 4.3.3);

---Modified the description of "Pulsating Flow Influence" (see 4.3.7);

---The description of "diagnostic function" has been added, and related content has been added (see 4.7);

---Modified the description of "inspection and adaptability" (see Chapter 5);

---Modified the description of the "working principle" of mass flow measurement (see 6.1.1);

---Modified the description of "Detection element of Coriolis flowmeter" (see 6.1.2);

---Added the content of "mass flow measurement" (see 6.2);

---Modified the description of "zero point adjustment" (see 6.4);

---Modified the description and calculation formula of the "working principle" of density measurement (see 7.2);

---Modified the symbol and calculation formula of "relative density" (see 7.3);

---Added the "Uncertainty of Density Measurement" (see 7.4);

---Modified the description of "factors affecting density measurement" (see 7.5);

--- Modified the description of "Manufacturer's Density Calibration" and "On-site Density Calibration and Adjustment" (see 7.6.2, 7.6.3);

---Added "Process fluid is a gas" and "Uncertainty of volume measurement" (see 8.3, 8.4);

--- Deleted the "additional measurement" content (see Chapter 8 of the.2006 edition);

--- Deleted the content of the normative appendix "Guide to Gas Measurement" (see Appendix E of the.2006 edition).

The translation method used in this standard is equivalent to ISO 10790.2015 "Selection of Coriolis Flowmeter for Measurement of Fluid Flow in Closed Pipes"

Type, installation and use guide (mass flow, density and volume flow measurement)".

The Chinese documents that have a consistent correspondence with the international documents cited in this standard are as follows.

---GB/T 27759-2011 fluid flow measurement uncertainty evaluation procedure (ISO 5168.2005, IDT);

---GB/T 27025-2019 General requirements for the competence of testing and calibration laboratories (ISO /IEC 17025.2017, IDT);

---JJF1001-2011 General measurement terms and definitions (refer to ISO /IEC Guide99.2007).

This standard was proposed by the China Machinery Industry Federation.

This standard is under the jurisdiction of the National Industrial Process Measurement Control and Automation Standardization Technical Committee (SAC/TC124).

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1 Scope

This standard provides guidelines for the selection, installation, calibration, performance and operation of Coriolis flowmeters for measuring mass flow and density. This standard

The standard also appropriately considers the type of fluid to be measured, and provides guidelines for the measurement of fluid volume flow and other related parameters.

Note. Fluid refers to air, natural gas, water, oil, liquefied petroleum gas, liquefied natural gas, artificial gas, mixed gas, various slurries, etc.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article

Pieces. For undated reference documents, the latest version (including all amendments) is applicable to this document.

ISO 5168 Fluid Flow Measurement Uncertainty Evaluation Procedure (Measurementoffluidflow-Proceduresforthe

evaluationofuncertainties)

ISO /IEC 17025 General requirements for the competence of testing and calibration laboratories (General requirements for the competition of

testingandcalibrationlaboratories)

ISO /IEC Guide99.2007 (JCGM200.2012) International Metrology Vocabulary Fundamentals and General Concepts and Related Terminology [In-

ternationalvocabularyofmetrology-Basicandgeneralconceptsandassociatedterms(VIM)]