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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 2624.6-2024

**Measurement of fluid flow by means of pressure differential
devices inserted in circular cross-section conduits running full
- Part 6: Wedge devices
(English Translation)**

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is Part 6 of GB/T 2624 "Measurement of flow rate of fluid in full pipe by using a differential pressure device installed in a circular cross-section pipe".

GB/T 2624 has published the following parts.

- Part 1: General principles and requirements;
- Part 2: Orifice plates;
- Part 3: Nozzles and Venturi nozzles;
- Part 4: Venturi tube;
- Part 5: Conical devices;
- Part 6: Wedge devices.

This document is equivalent to ISO 5167-6:2022 "Measurement of flow rate of fluids in full pipes by differential pressure devices installed in circular cross-section pipes Part 6 Part. Wedge Flow Meter.

The following minimal editorial changes were made to this document.

- In order to coordinate with the existing standards, the name of the standard is changed to "Measurement of the flow rate of a full pipe by a differential pressure device installed in a circular cross-section pipe" Part 6: Wedge devices;
- For ease of use, relevant notes are added to the text (see 5.2.1, 5.4.6, 5.5.1, 5.6);
- For ease of use, a header is added (see 6.2).

Introduction

GB/T 2624 consists of six parts, covering the installation of orifice plates, nozzles, venturi tubes, cone devices and wedge devices in full pipes.

When measuring fluid flow, its geometric dimensions and usage (installation and working conditions) are also given, as well as the methods for calculating flow and its corresponding uncertainty.

Necessary information for determination.

GB/T 2624 (all parts) is only applicable to the case where the fluid maintains subsonic flow throughout the measurement section and can be considered as a single-phase flow.

In addition, each device can only be used within the specified pipe size and Reynolds number range.

GB/T 2624 (all parts) applies to devices that have undergone direct calibration experiments, the number, scope and quality of which are sufficient to enable the relevant the application system can be based on experimental results and coefficients, and the coefficients given are also within a certain predictable uncertainty range.

A wider range of pipe sizes, diameter ratios β [formula (2)] and Reynolds numbers can be considered using the wedge arrangement calibrated in accordance with Chapter 7.

The device installed in the pipeline is called "primary device". "Primary device" also includes the pressure tapping. All other necessary for convenient flow meter reading the other instruments or devices are called "secondary devices". The flow computer that receives these readings and executes the algorithm is called the "tertiary device".

GB/T 2624 (all parts) mainly deals with primary devices, with only occasional mention of secondary devices (see ISO 2186) and tertiary devices.

GB/T 2624 "Measurement of full pipe flow rate using a differential pressure device installed in a circular cross-section pipe" consists of six parts.

--- Part 1: General principles and requirements. Aims to give general terms and definitions, symbols, principles and calculation methods, measurement, installation and General requirements for methods of determining flow measurement uncertainty and the pipe sizes and Reynolds numbers for which these differential pressure devices are applicable scope.

--- Part 2: Orifice plates. Aims to give the geometric dimensions and usage of orifice plates. Orifice plates can be used with flange pressure ports, corner pressure ports, for use with pressure ports D , D and $D/2$.

--- Part 3: Nozzles and Venturi nozzles. This part aims to give the geometric dimensions and usage of nozzles and Venturi nozzles, and involves ISA 1932 nozzle, long diameter nozzle and venturi nozzle.

--- Part 4: Venturi tube. Aims to give the geometric dimensions and usage of the Venturi tube, involving cast, machined and There are three types of classic venturi tubes. rough welded iron plate type.

--- Part 5: Conical device. Aims to give the geometric dimensions and use of the conical device, used in conjunction with GB/T 2624.1.

The cone device has one or more upstream pipe wall pressure tapping ports and a downstream pressure tapping port located at the tail of the cone.

The pressure pipe is connected from the inside of the cone to the cone support structure, and then passes upward through the support structure to be connected to the differential pressure transmitter.

--- Part 6: Wedge device. Aims to give the geometric dimensions and use of the wedge device, used in conjunction with GB/T 2624.1.

The primary device of the wedge device consists of a wedge-shaped throttling piece with specific geometric dimensions.

GB/T 2624 (all parts) does not cover safety aspects. It is the user's responsibility to ensure that the system complies with applicable safety regulations.

Measurement with a differential pressure device installed in a circular cross-section pipe
Full pipe flow rate of fluids Part 6: Wedge devices

1 Scope

This document specifies the geometric dimensions and method of use of wedge-shaped devices installed in pipelines to measure the flow rate of fluids in full pipes (installation and operation).

condition).

Note 1: For specific application scenarios, the uncertainty of an uncalibrated wedge device is difficult to predict, so it is necessary to conduct a real flow test in accordance with the provisions of Chapter 7.

calibration.

This document specifies calibration requirements and, if applicable, may be used over a calibrated Reynolds number range.

It also provides guidance for the calibration of similar flow meters.

This document also provides relevant information for calculating flow rates and for use with the requirements of ISO 5167-1:2022.

This document applies only to wedge devices where the flow is subsonic and single-phase throughout the measuring section.

The device can only be used within the specified range of pipe size, pipe surface roughness, beta [given by formula (2)] (or wedge ratio) and Reynolds number.

This document does not apply to the measurement of pulsating flows. This document does not cover uncalibrated wedge devices with an inner diameter less than 50 mm or greater than 600 mm, or Use in pipelines with a pipeline Reynolds number (Re_D) less than 1×10^4 .

NOTE 2 The primary device of a wedge-shaped device consists of a wedge-shaped throttling piece of specific geometry. Other types of wedge-shaped devices exist but at the time of preparation of this document There are not enough data to fully characterize these devices, so they are calibrated with real flow as described in Chapter 7.