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

GB/T 21446-2025

Replacing GB/T 21446-2008

**Measurement of natural gas flow by means of standardized
orifice meter**

用标准孔板流量计测量天然气流量

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1 Scope

GB/T 21446-2025 is the Chinese national standard covering custody transfer by orifice plate - the plate and the pipe geometry and the tolerances on both, the straight lengths and the flow conditioner, the differential pressure measurement, the gas composition and compressibility, and the uncertainty of the final volume. At 48,500 words. This is the standard behind the billing of most of the natural gas sold in China. Issued on 5 October 2025, it has been in force since 1 May 2026, replacing GB/T 21446-2008.

This document specifies the technical requirements for the processing and installation of standard orifice plates, and provides the mass flow rate of natural gas and the volumetric flow rate under standard reference conditions. Methods for calculating energy flow and the assessment of measurement uncertainty. This document applies to throttling devices for single-phase natural gas, with pressure tapping methods including flange and corner connections, and orifice plate opening diameter equal to or greater than 12.5mm, measuring tube inner diameter equal to or greater than 50mm and equal to or less than 1000mm, diameter ratio equal to or greater than

0.1 and equal to or less than

0.1 For cases where the pipeline Reynolds number is

0.75 or greater than 5000.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 8170 Rules for rounding off numerical values and the representation and

determination of limiting values

GB/T 11062 Calculation Methods for Calorific Value, Density, Relative Density and Wobbe Index of Natural Gas

GB/T 13610 Compositional Analysis of Natural Gas - Gas Chromatography

GB/T 15464 General Technical Requirements for Packaging of Instruments and Meters

GB/T 17747 (all parts) Calculation of natural gas compressibility factor

GB/T 18603 Technical Requirements for Natural Gas Metering Systems

GB/T 30491 (all parts) Calculation of thermodynamic properties of natural gas

GB/T 35186 Performance Evaluation of Natural Gas Metering Systems JJG640 Differential Pressure Flow Meter Verification Procedure

3 Terms, Definitions and Symbols

3.1 Terms and Definitions The following terms and definitions apply to this document.

3.1.1 A thin plate with circular perforations, obtained through machining. Its throttling orifice has a cylindrical surface perpendicular to the upstream end face of the orifice plate, and its edges are... The orifice plate is sharp, and its thickness is relatively small compared to its diameter. It should be designed within the scope and requirements specified in this document. Manufacturing, installation and use.

Note. Hereinafter referred to as "perforated plate".

3.1.2 orificeplateholder A pressurized piping assembly used to output the static pressure difference generated by the orifice plate and to house and position the orifice plate.

[Source:

GB/T 8423.4-2022, 4.1.65]

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