

多相流和计算流体力学

## 槽式孔板的低含液率气液两相流测量特性

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**摘要** 槽式孔板是一种新型气液两相流量传感器, 目前尚未发现能够应用于槽式孔板的两相流压降相关式, 结合空气/水两相流实验数据, 比较了五类典型的标准节流元件两相流压降相关式对槽式孔板测量数据的计算结果, 分析了这些相关式的适用范围和误差原因。基于不同的建模思想, 综合考虑洛一马参数、介质压力、气相流量等参数的作用, 建立了三种相对准确的槽式孔板两相流压降相关式, 并将其应用于低含液率的凝析天然气计量技术研究, 计算结果表明三种相关式均能达到工业计量的精度要求。

**关键词**

[槽式孔板](#) [计量技术](#) [气液两相流](#) [凝析天然气](#) [组合测量](#)

分类号

## Metering characteristics of slotted-orifice for gas-liquid two-phase flow with low liquid fractions

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### Abstract

The slotted-orifice is a new type of flow sensor for gas-liquid two-phase flow measurement, and there is no correlation of two-phase multipliers for the slotted-orifice available. Based on the air-water two-phase flow experimental data of slotted-orifice, five typical correlations of the standard throttle device were applied to the data, and the application range and the reason for error involved from these correlations were analyzed. Based on different modeling ideas, three new correlations, which include the Lockhart-Martinelli parameter, gas pressure and gas Froude number, were proposed and used in the study of metering technology of wet gas flow. The accuracy of new correlations can meet the gas industry demands for production based metering.

### Key words

[slotted-orifice](#) [metering technology](#) [gas-liquid two-phase flow](#) [wet gas](#) [multiple measurement principle](#)

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