

## 热式气体流量计温度补偿研究

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摘要:

恒温型热式流量计加热探头与被测介质之间交换的热量不仅与质量流量有关还与被测介质的温度有关。通过对流量计热交换模型的分析, 导出了热式气体流量温度补偿的模型。同时对传感器的结构和常用的驱动电路进行了分析, 指出了现有补偿电路的不足, 提出了一种新的温度补偿电路。通过电路分析和试验证明, 补偿电路能改善温度补偿效果。

关键词: 热式流量计 温度补偿 换热模型 桥式电路

## Research on temperature compensation of thermal gas flowmeter

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**Abstract:**

The heat exchanged between the probe of constant temperature thermal flowmeter and the flow not only correlates with the mass flux but also with the flow temperature. temperature compensate model is deduced from analysis of heat transfer model of the thermal gas flowmeter. Meanwhile, the structure of sensor and the general driver circuit are analyzed, and the shortcoming of the general compensation circuit was presented. A new type of temperature compensation circuit was given based on the analysis. result of analysis and test of the new circuit show that the temperature compensation effect has been improved.

**Keywords:** thermal flowmeter, temperature compensation, heat-transfer model, bridge circuit

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