

基于ZLJ-C系列科里奥利质量流量计的流体粘度测量技术研究

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摘要：

研究了采用ZLJ-C系列科里奥利质量流量计进行流体粘度检测的技术与方法；将流体及传感器敏感管（以下简称传感器管）置于柱坐标下对流体动力粘度和科里奥利质量流量计振动时的参数进行了系统分析；提出了一种新的粘度检测方法；利用量纲分析法对相关结论进行了验证。实际实验数据表明该方法是可行的。该技术简单、有效，可在不改变科里奥利质量流量计原有结构的条件下实施。

关键词：科里奥利质量流量计 粘度 量纲分析 振动

The research of fluid viscosity measurement technique with ZLJ-C series Coriolis mass flowmeter

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Abstract:

This article focused on the topics of the viscosity measurement of the fluid passing the Coriolis mass flowmeter. The paper put the tube and the fluid into the cylindrical coordinates to analyse systematically. According the study of relation of vibration parameter and dynamic viscosity, a new method was proposed firstly. After using dimensional analysis dealt with the problem, the result was tally with the theory which put forward in the paper. The paper translated the equation to a linear equation showed in the paper. And the correctness of the theory was proved by the experiments. The modification for the execution carried in the real Coriolis mass flow meter was small, even not necessary. And the operation of viscosity measurement was easy、appropriate and accurate in practice.

Keywords: Coriolis mass flowmeter; viscosity; dimensional analysis; vibration;

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