

论文

基于液相调节的除尘器阻力特性

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摘要:

以节流型自激式水幕除尘器为研究对象, 通过对节流强度 α 、总阻力损失 h 和节流液位差 ΔH 等的研究, 探讨了液相调节作用下除尘器的阻力特性, 得出除尘器 α 值与气体流速 v 呈线性关系, α - v 曲线斜率受除尘器内部设备阻力的影响, 阻力系数越大, 斜率越小; 除尘器 h - v 曲线是直线和抛物线的组合体, 当初始节流强度 $\alpha_0 > 0$ 且 v 较小时, 体现出明显的抛物线特性, 当 $\alpha_0 < 0$ 或 $\alpha_0 > 0$ 且 v 较大时, h - v 曲线体现出直线特性; 液相通过自身流动性来改变气液两相的受力平衡, 达到调节除尘器阻力的目的。

关键词: 除尘器; 节流强度; 总阻力损失; 节流液位差; 液相流动性

Resistance characteristics of dust separator based on liquid phase adjustment

Abstract:

Throttle-type self-excitation dust separator was chosen as the study object. Through the study of dust separator's throttle strength value α , total pressure loss value h and throttle liquid-level difference value ΔH , the dust separator resistance characteristics, based on adjustment of liquid phase, was explored. The primary conclusions are as follows: there is linear relationship between α value and gas velocity value v . And the slope of α - v curve is affected by the equipment resistance coefficient in dust separator. The slope value reduces with the increase of equipment resistance value. The dust separator h - v curve is made up of straight line and parabola. When the initial throttle strength value $\alpha_0 > 0$ and the gas velocity v is on the small side, the h - v curve exhibits a parabolic distribution obviously. Whereas if the initial throttle strength value $\alpha_0 < 0$ or $\alpha_0 > 0$ and the gas velocity v is on the great side, the h - v curve exhibits a linear distribution. The equilibrium condition of force is changed by the self-fluidity of liquid-phase; as the result, the resistance characteristics of dust separator are adjusted by that.

Keywords: dust separator; throttle strength; total pressure loss; throttle liquid-level difference; liquid-phase fluidity

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