

传递现象

## 一种削弱振荡管内反射激波能量的方法

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摘要

激波吸收腔是影响热分离机效率的重要结构, 采用数值模拟和实验的方法对其进行研究, 结果表明: 数值模拟能够捕捉振荡管内激波和接触面两个间断; 反射激波压力最大值随吸收腔直径比 $D/d$ 增加而减小, 随吸收腔长径比 $L/d$ 增加而降低。提出一种实用的吸收腔结构——串联吸收腔, 对比2个和3个吸收腔串联结构后, 证明在膨胀比 $\alpha < 6$ 范围内2个吸收腔串联结构是最佳选择。

关键词 [热分离机](#) [反射激波](#) [振荡管](#) [消波技术](#)

分类号

## A weakening reflected shock wave method in oscillating tube

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### Abstract

Shock wave absorber is the most important component of thermal separator. This paper focuses on shock wave absorber by way of numerical simulation and experiment. The conclusions are as follows: two discontinuities in oscillating tube, shock wave and contact surface, can be captured very well by numerical simulation. Moreover, the reflected shock wave amplitude is reducing with increasing diameter ratio  $D/d$  and increasing length diameter ratio  $L/d$ . The paper proposes a new kind of structure, serial shock wave absorber and suggests that the two-stage series absorber is a better choice which can effectively weaken the reflected shock wave at an expansion ratio less than 6, compared with the three-stage one.

### Key words

[thermal separator](#) [reflected shock wave](#) [oscillating tube](#) [weakening wave technology](#)

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