减振器节流阀片拆分为多片叠加的设计方法

Method for design of superposition throttle-slice of damper

投稿时间：2005-12-31　　最后修改时间：2006-6-6

稿件编号：20061125

中文关键词：减振器； 节流阀片； 设计

英文关键词：damper； throttle-slice； design

基金项目：武器装备预研基金项目(51404040104BQ01)；全国优秀100篇博士论文育苗及奖励基金(010003)

作者	单位
周长城	(1963－)，男，山东泰安人，教授，博士，主要研究振动与噪声控制，车辆悬架理论及设计。淄博山东理工大学交通与车辆工程学院，255049。Email:greatwall@sdut.edu.cn
顾亮	北京理工大学机械与车辆工程学院，北京 100081

中文摘要：

该文通过节流阀片力学模型建立了节流阀片弯曲变形微分方程，对节流阀片弯曲变形的研究，得到了弯曲变形系数、弯曲变形计算公式和当量厚度计算公式。研究了叠加阀片所受最大应力与当量厚度阀片所受最大应力之间的关系，得到叠加阀片的应力系数和厚度系数。利用当量厚度计算公式和叠加阀片应力系数、厚度系数，给出了设计厚度阀片拆分为*n*片的原则。并对叠加阀片应力进行了仿真研究和叠加阀片减振器的阻尼特性试验。结果表明，叠加节流阀片的拆分设计计算方法是准确有效的。

英文摘要：

In this article, through building the mechanic model of throttle-slice, the deformation of throttle-slice is studied, the formula and coefficient of elastic throttle-slice bending deformation created, could be used to calculate the bending deformation accurately. Through the study on the superposition throttle-slices thickness, the equivalent thickness formula is obtained. The maximal stress on the superposition throttle-slices was discussed, the relationship between the maximal stress on the superposition throttle-slice and the maximal stress on a piece of throttle-slice with equivalent thickness was investigated, and the coefficients of tress and thickness were obtained. With the equivalent thickness formula and the coefficients of strees, the thickness design of superposition throttle-slices was studied, the design rule was given. With the coefficients of thickness, the stress of superposition throttle-slices was studied and simulated. At last, the damping characteristics of dampers with single throttle slice of designed thckness and muti-slices were tested. The results of test and simulation show that the design rules and the methods of superposition throttle-slices are feasible and effective.

查看全文　　关闭　　下载PDF阅读器