

## 膜片弹簧疲劳破坏源的应力试验分析及计算

### Test Analysis and Calculation of Fatigue Stress of Diaphragm Spring Used in Vehicle Clutches

投稿时间: 1998-6-26

稿件编号: 19980413

中文关键词: 膜片弹簧, 应力计算, 疲劳, 电测

英文关键词: diaphragm spring, stress, fatigue, calculation, resistance strain method

基金项目:

作者	单位
高翔	江苏理工大学
朱茂桃	江苏理工大学
夏长高	江苏理工大学
张铁山	南京理工大学

摘要点击次数: 5

全文下载次数: 15

中文摘要:

在现代车辆离合器中广泛使用膜片弹簧, 由于其形状复杂, 应力计算困难。目前工程上广泛应用的 Almen-Laszlo 公式误差较大, 不能满足工程需要。该文用电测法研究了膜片弹簧疲劳源处应力-变形规律, 提出了对 Almen-Laszlo 公式进行修正的方法, 并且得到修正系数与膜片弹簧窗孔宽度线性相关的结论。在膜片弹簧最大工作变形点, 修正公式的误差小于 5%。

英文摘要:

Diaphragm springs are widely applied in modern vehicle clutches. Because of their particular geometric shape, it is difficult to calculate the characteristics of stress deformation of the springs. The Almen-Laszlo formula, deduced from disk spring model are still used to estimate the stress of diaphragm spring. In engineering the most fatigue crack origins emerge nearby inner edge of the springs, but the analyzed results of the Almen-Laszlo formula fail to explain this phenomenon. In this paper, the stress deformation characteristics at fatigue crack origin of diaphragm spring of three different types are measured with strain gauges. A comparison between the test results and calculation with the Almen-Laszlo formula was done. It is found that at the maximum working deformation, the values of test stress are 20% larger than that of calculation with the Almen-Laszlo formula. A modificative calculation method to the Almen-Laszlo formula was proposed. Linear correlation between the modification coefficients and the notch width was also found. The results of modificative calculations of the parts are well coincided not only with ones of test samples but also with spring used in vehicle CA630.

[查看全文](#)

[关闭](#)

[下载PDF阅读器](#)

您是第607236位访问者

主办单位: 中国农业工程学会 单位地址: 北京朝阳区麦子店街41号

服务热线: 010-65929451 传真: 010-65929451 邮编: 100026 Email: [tcsae@tcsae.org](mailto:tcsae@tcsae.org)

本系统由北京勤云科技发展有限公司设计