某自动挡车型选挡操纵机构的设计与验证

摘　要

现代汽车产品研发过程中，更多的应用了计算机辅助工程，例如使用有限元分析法对产品的强度及变形量进行数据层面的分析，通过计算机输出的分析结果，设计人员可以及时发现产品设计缺陷并及时修正。很大程度的提高了产品设计成功率，减少了实物产品样机的试验验证循环，降低了产品开发成本，更重要的是缩短了产品的研发周期。

选挡操纵机构在汽车行驶过程中使用频繁，需具备高可靠性和操作便利性。本文根据选挡操纵机构的周边数据参数，对选挡操纵机构进行了选型和设计。通过基于 CATIA 的有限元分析对选挡摇臂等关重零件进行了强度及变形量校核。最后完成了对选挡操纵机构的关重性能试验方法的编制。

自主设计能力是汽车厂商的核心竞争力，也是中国从汽车产业大国转到汽车产业强国的最大推动力。希望通过本篇内容的阐述，可以为从事汽车选挡操纵系统设计工作的技术人员提供一些参考。

关键词：选挡操纵机构，有限元分析，CATIA

Abstract

More computer aided engineering are applied to the modern automobile product development process, for example, using finite element analysis for the product strength and deformation on the level of data analysis, through the analysis of computer output as a result, designers can timely find product design defect and timely correction. Greatly improve the success rate of product design, reduce the physical product prototype test cycle and the cost of product development, more important is to shorten the product development cycle.

The select control mechanism is frequently used in vehicles, It should operate reliably and operate flexibly. According to the surrounding data parameters, completed in select control mechanism type selection and design. The strength and deformation of the key parts, such as the rocker arm, are checked by CATIA finite element analysis. Finally, the important performance test method of select control mechanism is developed.

Independent design ability is the core competitiveness of automobile manufacturers, and also the biggest driving force for China to transform from a big country in automobile industry to a powerful country in automobile industry. Hope that through the elaboration of this content, It can provide some reference for the engineer who is responsible for the design of the select control mechanism.

Key words: select control mechanism; finite element analysis; CATIA