

基于AMESim和有限元法的浮动式举升缸支座设计与分析 Analysis and Design of Lifting Oil Cylinder Support with Floating Support Structure Based on AMESim and FEM

杨春晖 罗维东 张文明 王辉

北京科技大学

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摘要: 通过拓扑优化设计了自卸车浮动式支撑结构的举升缸支座; 利用AMESim软件对液压举升系统进行仿真, 得到了举升缸支座工作时的载荷曲线和最大载荷; 根据最大载荷, 用有限元方法对其本身以及其对车架纵梁的影响进行了分析。与传统底板焊接式和纵梁式结构的举升缸支座相比, 浮动式支撑结构的举升缸支座明显优于其他两种结构。 A lifting oil cylinder support with floating support structure was designed by the topological optimization technology. The hydraulic pressure lifting system was simulated by AMESim software, and the load curve and the maximum load of the lifting oil cylinder support were obtained during lifting. Based on the maximum load, the load and its effects on the frame carling were analyzed by FEM. Afterward, the comparison and analysis were done among floating support structure and the other two traditional structures of jointing on bottom steel board structure and carling structure. The analytical results indicate that the lifting oil cylinder support with floating support structure is obviously superior to the other two structures.

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