
新型汽车起重机设计

摘 要

近年来，随着我国城镇化建设程度的提高，建筑行业飞速发展，在全国各个城市各种高大建筑物随处可见。而且现在一般的居住条件已经无法满足人们，外观、内饰更加美观、实用已经成为了人们的基本要求。汽车起重机无疑是最适合时代发展的产物，它不但可以帮助进行外墙修饰、清洁等高空作业，而且操作简便，易于掌握。现在起重机行业内的竞争也是非常激烈，起重能力、安全性、额定承载能力等因素使得人们对汽车起重机的要求越来越高。汽车起重机的伸缩臂作为最关键的部位，改进伸缩臂的结构也就成为了重中之重。本文主要针对以额定起重量 25 吨为例的汽车起重机进行了伸缩臂主臂的长度设计、伸缩臂的整体结构设计、每节臂的长度设计及校核、采用新型伸缩臂截面形状和液压缸设计以及一些基本零部件的选择，并且对吊臂承受载荷以及受力分析作了阐述。

关键词：汽车起重机；伸缩臂；截面；材料

Design of a new type of truck crane

ABSTRACT

In recent years, with the improvement of urbanization in China, the construction industry is developing rapidly, and all kinds of tall buildings can be seen everywhere in all cities of the country. And now the general living conditions have been unable to meet people, the appearance, interior more beautiful, practical has become the basic requirements of people. The truck crane is undoubtedly the most suitable product for the development of the times. It can not only help the external wall decoration, cleaning and other high-altitude operations, but also easy to operate and master. Now the competition in the crane industry is also very fierce, lifting capacity, safety, rated load-carrying capacity and other factors make people's requirements for the truck crane more and more high. As the most critical part of the crane, improving the structure of the boom has become the most important. In this paper, the length design of the main boom, the overall structure design of the boom, the length design and check of each boom, the section shape and hydraulic cylinder design of the new boom and the selection of some basic parts are mainly carried out for the truck crane with a rated lifting capacity of 25 tons. The load and force analysis of the boom are also described.

Key words: truck crane; telescopic boom; section; material

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