CA6140 车床主轴箱设计

摘　　要

金属切削机床是将车刀与旋转的毛坯之间进行相对运动，通过控制工件与刀具的相对位置，加工出自己所需要的零件，简称为机床，它是生产机器的机器，所以被称为机器之母。现如今，在机械的加工制造领域，加工方法十分丰富，能够满足人们的各种要求，除了机床加工之外，有铸造、焊接、锻造等几种加工方法、若是选用机床加工，有车、钻、铣、刨、磨等几种加工方法，通过机床加工，其精度大大高于人工操作。车床中主轴箱是将电动机所产生的动力、转矩、传递给主轴的重要部件，箱体内有多跟轴，轴上齿轮相互啮合，产生不同大小的传动比，从而主轴产生了多级的转速，主轴箱使用寿命长，传动平稳，噪音低，能够传递多级转速，操作方便，振动小。由于其是整个车床的主要传动部件，所以其精度要求也比较高，可以说主轴箱的质量直接影响到一台机床的工作水平，从而影响了产品的精度和质量[1]。

CA6140 车床主轴箱设计主要针对 CA6140 机床的主轴箱进行设计。设计的内容主要包括了解 CA6140 主轴箱结构及传动原理，确定机床的主要参数，拟定传动方案和传动系统图，计算和校核主要零部件，并且运用 AutoCAD 软件进行设计和绘图。

关键词：主轴箱；传动系统；计算机绘图

Design of CA6140 Lathe Spindle Box

ABSTRACT

Metal cutting machine is a machine that uses cutting method to process metal blank into parts and parts. It is a machine that makes machines, so it is also called "working master machine" or "tool machine ".In the modern mechanical manufacturing industry, there are many ways to process machine parts, such as casting, forging, welding, cutting and special machining. Cutting is the most common, and it is the main processing method to call metal blank machining parts with high precision shape, size and high surface quality. At present, the machining precision and surface quality are mainly achieved by cutting. Therefore, metal cutting machine tools are the main equipment for machining machine parts. and its workload, about 40%~60% of the total machine manufacturing volume, and the technical level of the machine tool directly affects the product quality and labor production rate of the machinery manufacturing industry.

CA6140 lathe spindle box design is mainly aimed at CA6140 machine tool spindle box design. The main contents of the design include understanding the structure and transmission principle of the CA6140 spindle box, determining the main parameters of the machine tool, drawing up the transmission scheme and transmission system diagram, calculating and checking the main parts, and using the software such as CAD, UG NX to design and draw.

Key Words: Spindle Box; Transmission System; Computer Drawing

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