摘 要

伺服进给系统是数控机床重要的组成部分，影响机床的性能。数控机床的伺服进给系统是由伺服驱动电路,伺服驱动装置机械传动机构及执行部件四部分组成。为了提高数控机床的性能，它需要高精度的机床进给伺服系统，以保证零件的加工质量，提高效率，从而保证数控机床的定位精度和加工精度。同时，数控机床的伺服进给系统需要快速响应,以确保轮廓切削形状的准确性和加工表面的粗糙度。所以，越来越多的研究人员投入了大量的经理进行伺服进给系统的研究，研究数控机床伺服进给系统的结构，以了解进给系统的原理和设计方法，然后探讨可能的设计。

本次数控机床伺服进给系统的设计以滚珠丝杠螺母副为核心原件进行伺服进给系统的结构设计。本文详细描述了数控机床伺服系统的滚珠丝杠的选择，伺服电机的选择，精度和刚度的验算。同时运用 AUTOCAD 进行各个零部件的装配。

关键词：数控机床；伺服进给系统；滚珠丝杠副；伺服电机；轴承

Abstract

The servo feed system is an important part of the CNC machine tool, which affects the performance of the machine tool. The servo feed system of CNC machine tool is composed of four parts: servo drive circuit, servo drive device mechanical transmission mechanism and actuator. In order to improve the performance of CNC machine tools, it requires a high-precision machine tool feed servo system to ensure the processing quality of parts and improve efficiency, thereby ensuring the positioning accuracy and processing accuracy of CNC machine tools. At the same time, the servo feed system of the CNC machine tool needs to respond quickly to ensure the accuracy of the contour cutting shape and the roughness of the processed surface. Therefore, more and more researchers have invested a lot of managers to study the servo feed system, study the structure of the CNC machine tool servo feed system to understand the principle and design method of the feed system, and then discuss possible designs.

The design of the servo feed system of this numerical control machine tool uses the ball screw nut pair as the core element to design the structure of the servo feed system. This article describes in detail the selection of ball screw of CNC machine tool servo system, the selection of servo motor, the calculation of accuracy and stiffness. At the same time, use AUTOCAD to assemble various parts.

目录