
摘 要

它采用了一种具有数控机床的三轴磨床的形式，它具有不同的处理轨迹(如曲线和直线)，并通过修改磨轮来加工不同的型腔和轮廓，以提高曲面质量。还可以执行其他部分的刀具。设计了三台联动数控磨床，将刀盘与立柱之间的鼠齿连接起来，改变芯轴与工作台的角度，采用交流伺服电机驱动三个坐标方向的活套，选用十字联轴器，双头支撑轴承和双头支撑轴承可作为工作台两端的固定支撑，以满足精度要求。反馈通过速度反馈和位置反馈在三个方向实现。变频器用于无级调速。所有的发动机都有微量控制器。

该结构主要用于数字砂光机的研究和生产。滚珠丝杠主要用于了解微型计算机的工作原理以及设计的工作台 x 和 Y 的传送系统。学习使用不带反馈机制的系统的控制系统。了解整体胎面结构的设计，优缺点，并充分考虑主要矛盾，以选择最佳的机器设计来理解转向原理。

认真思考产品的经济、技术和适宜性，选择取得最佳结果的最佳方案。

关键词：数控；三坐标；铣床

Abstract

This design is for tri-coordinate numerical control grinding machine .This machine tool can work along the curve and straight line through co-operation of three axles .By changing the abrasive wheel it can also process different type and outline .And thus improve the quality of its surface .Furthermore, this machine tool can handle the face-improving process of other tools and components .

The tri-coordinate NC curved surface grinding machine work head is connected with stand post by means of a mouse-tooth device .It can change the angle between the main axle and work desk. The motion of tri-coordinate direction is urged by DC. The work desk is fixed at both ends, thus it can reach the high accuracy .Three coordinate direction move and urge by direct current serve electrical machinery and realize half close ring system through speed feedback and position feedback. Main shaft adopt and exchange electrical machinery by electrical machinery ,go on step speed regulation to their by converter. All electrical machineries are controlled by the one-chip computer.

In this way the product produced are with high quality we mainly design the structure of the numerically controlled milling machine, and find out control principle of single tool machine: The design of the transmission structure of X、Y worktable .Mainly the application of boll beany; Assiting system with the control of open-loop system and its working prinples; The design of the whole machine structure and it advantages and disadvantages; The design of the numerically controlled device ,and its control principles.

The design takes full account of actual cost-effectiveness, technology and sequence of application possibilities, and a minimal effect plan is selected..

Keywords: Numerical Control ; Tri-coordinate; Milling Machine

目 录

第 1 章 概论.....	1
1.1 数控机床的产生与发展	1
1.2 数控机床及其应用范围	1
1.3 数控机床的基本组成及分类.....	1
1.4 数控机床的工作过程及特点.....	2
1.5 磨削概论	2
1.6 三坐标数控磨床	3
1.7 主要研究内容	5
第 2 章 总体结构设计	6
2.1 提高机床的结构刚度的设计.....	6
2.2 提高机床的抗振性的措施	7
2.3 提高机床灵敏度	7
第 3 章 进给伺服系统结构设计	8
3.1 进给伺服系统的作用	8
3.2 进给伺服系统的设计要求	8
3.2.1 对进给伺服系统的基本要求.....	8
3.2.2 进给伺服系统的设计要求	8
3.3 进给伺服系统的组成	9
3.4 进给伺服系统的分类	9
3.5 给伺服系统的数学模型	10
3.5.1 数控机床的位置调节系统.....	10
3.5.2 进给伺服系统的数字模型.....	10
3.6 进给伺服系统的动态响应特性及伺服性能分析.....	10

以上内容仅为本文档的试下载部分，为可阅读页数的一半内容。

如要下载或阅读全文，请访问：

<https://d.book118.com/646041222034010240>