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## 工业机器人机械手臂液压设计

### 摘 要

工业机器人液压操纵器根据给定的程序和轨迹模拟人体手动动作，通过液压系统根据所述顺序给定的工作机械的液压传动设计，综合运用机械设计基础知识的基础理论和相关专业知知识，完成机器人设计和准备必要的安装图，液压系统捕获：的机械结构机器人由气缸，螺钉和其他机械组成导向筒；在液压致动器，用于伸缩臂伸缩缸，对于手腕的旋转而旋转缸，齿条直立用于气缸旋转，提升缸用于提升机械手，横向油缸用于立柱移动；控制电磁阀开关控制机械手相应的动作周期。当按下连续停止按钮时，操纵器完成。形成动作循环后停止移动。

该项目的目的是开发一个装载机制，可以在空间捕捉和释放物体，灵活和多样化的运动，可以取代高温和危险地区的手工作业，能得到重量较大的产品。可以改善工作条件，避免工伤事故。可以减少人力资源，简化节奏生产。

**关键词：**工业机器人；机械手；液压；控制回路

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## ABSTRACT

Hydraulic manipulator of industrial robot simulates human hand action according to given program and trajectory, captures mechanical hydraulic transmission design according to given sequence through hydraulic system, completes the design of manipulator by using basic theory, basic mechanical design knowledge and relevant professional knowledge, and compiles necessary installation drawings. Hydraulic system: the mechanical structure of manipulator is composed of cylinders. In the hydraulic transmission mechanism, the telescopic cylinder is used for arm expansion, the rotary cylinder for wrist rotation, the rack cylinder for column rotation, the lifting cylinder for manipulator lifting, the transverse cylinder for column movement, and the solenoid valve switch is used to control the corresponding action cycle of the manipulator. When the continuous stop button is pressed, the operator completes. Stop moving after forming action cycle.

The aim of this project is to develop a loading mechanism, which can capture and release objects in space, flexible and diversified movement, can replace manual work in high temperature and dangerous areas, and can obtain heavy products. It can improve working conditions and avoid accidents at work. It can reduce human resources and simplify the rhythm of production.

**Key words:** Industrial Robot; Manipulator; Hydraulic; Control Circuit

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