ABOUT SSELECTION OF THE ELECTRIC DRIVE OF THE INDUSTRIAL ROBOT

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Today many robots work on different enterprises around the world. Special attention is paid to heavy, hazardous, tiring, and repetitive tasks. One of the advantages of using robots in the industry is reducing the waiting time of goods at work sites and reducing energy costs through effective planning of travel routes.

When designing of the electric drives of the degrees of freedom, a synthesis of each individual drive is performed. The mutual influence of degrees of freedom if taken into account by introducing ranges of change of inertial load characteristics and maximum load moment. Drives of the robot can work independently, when performing sequential movements at different degrees of freedom (possible in positional control devices), and together when it is needed to reproduce a given trajectory in space (contour control devices). Since when working a given trajectory of movement with assist of the mutual influence of the degrees of freedom, the dynamic characteristics of the drives are worsened, so it is necessary to use dynamic correction tools that provide the parameter range if the required quality of control of the drive system during joint motion.

Mutual for all the drives are requirements for energetic and dynamic characteristics that determine the stability reserves and the quality of transient processes. Due to the design features, the electric drive of the robot must have high dynamic parameters (to reproduce complex control algorithms), the executive electric motor must respond quickly, and have small dimensions and weight. The main requirement for the technological process is to ensure the necessary movement of the end effector from one point to another with given accuracy. A closed-loop electric drive provides better control of the actuators, although the circuits in such an implementation will be more complex. The thyristor convert-motor control system in a closed-loop system usually implements precise positioning with a high quality motion schedule.

So, this review lets us to design electric drive for the industrial robot with degrees of freedom according to stated requirements and technological processes.

Sources:

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