

ABSTRACT

In recent years, many industries have been using industrial robots to accomplish their products. There are many reasons and advantages that industries using industrial robots as faster and cheaper than human can do.

Kawasaki Robot EH-120 is multi axes articulated coordinate robot type. The major advantage of this configuration is that it permits the joint actuators to be placed close to, or on the base of the robot itself. The arm inertia and weight can be considerably reduced because robot is not carried in or on the upper arm. The result is a larger load capacity than is possible in a jointed spherical device for the same size actuators. This type of robot has also another advantage that it produces a manipulator that is mechanically stiffer than most others. The major disadvantage of this configuration is that the robot has a limited workspace compared to jointed spherical robot.

This paper is trying to explain how to recalculate Kawasaki EH-120 design including torsion of each joint, servo motor power, each joint's transmission, electrical devices, and how to maintenance it. The objective of this paper is to bring many of the concepts that the writer studied from lectures to bear in solving a practical problem. It starts from calculating the magnitude of torque each joints which activate link connected. The transmission systems which have been designed must afford to reduce such rotation and dynamic torque so rotation and torque which servo motors' shaft accepted can be considerably reduced.

I have chosen Brushles AC servo motor as joint actuator because it can provide the torques needed as the arm moves. The robot is fully equipped with appropriate variation grippers to accomplish the products.