

INDUSTRY
ROBOTICS & AUTOMATION

APPLICATION
MECHANICAL ARM DRIVE

PRODUCT
RPP SILVER 2



SITUATION/APPLICATION

Today's robotic and automated manufacturing processes require faster speeds, increased precision and compact design. Applications range from miniature, precision motion semiconductor manufacturing to automotive assembly lines.

The robotic arms used in this sector are designed to perform tasks such as welding, gripping, spinning etc. For example, robot arms found on automotive assembly lines perform a variety of tasks such as welding and parts rotation and placement during assembly.

High strength synchronous belts are increasingly incorporated into robotic arm applications. Megadyne works extensively with OEMs in this segment solving the problems presented by applications requiring high precision movement and placement repeatability.

THE PROBLEM

A robotic arm manufacturer contacted Megadyne with an application requiring high precision placement. Destined for use in a manufacturing environment, the robotic arm was to be used for an assembly process that required consistent, repetitive movement with great accuracy. The synchronous belt from a competitor did not deliver the degree of accuracy required. Also, the aluminum pulleys used suffered from excessive wear after a short period. The pulleys contributed to inaccuracy of the arm movement.

THE SOLUTION

The RPP Silver2 8M extra high torque synchronous rubber belt eliminated the issues with this application allowing the customer to fine tune the accuracy of their robotic arm. Specially designed custom belts with reduced length tolerance helped provide the needed precision. Low elongation was guaranteed thanks to an innovative fiber reinforced rubber compound for high tooth strength and shear resistance, combined with a high strength fiber glass cord tensile member. Accurate tooth mesh was further enhanced by the industry standard RPP tooth profile. Additionally, custom surface treatments to harden the pulley teeth further aided prolonged precision. These features combined to ensure fast, accurate, and repeatable movement.

THE RESULT

While standard products meet the needs of most applications, a custom drive is always an option. Relying on many years of experience, Megadyne provides custom solutions to unique challenges on a regular basis. This application now operates with great accuracy thanks to the innovative options employed.

