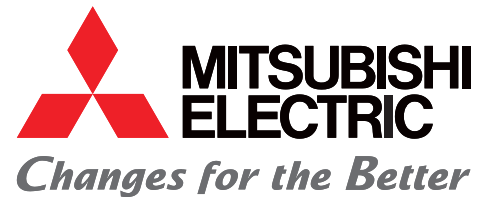




for a greener tomorrow



Schaefer Megomat's wire processing machine increases throughput by 20%

Case Study

Solution

- Q Series PLC
- Q172DSCPU motion controller
- J3 servo motors with anti-vibration technology

Schaefer Megomat Product Benefits

- Accurate motion profile at fast speeds
- 20% increase in throughput
- Reduced training costs
- Easier troubleshooting and repairs
- Smaller footprint

Mitsubishi Electric Value-added Advantages

- High speed
- Advanced vibration control
- Intuitive HMI
- Compact design



BACKGROUND

Schaefer Megomat automatic wire processing machines were originally produced in Switzerland, starting in the 1970's. The company began manufacturing fully automatic wire processing machines in the U.S. in 1990, and today, continues to produce a variety of these systems in its 30,000 square foot facility near Milwaukee, Wisconsin. In order to meet the stringent demands of its customers, Schaefer Megomat enlisted end-user input in the early stages of developing its latest wire-processing machine. The company's engineers, service technicians and designers listened to these users discuss the challenges of their most complex wire processing applications. This invaluable insight helped Schaefer Megomat develop a strict set of parameters for both the system itself and the products that would be built into it, including advanced vibration control, accuracy of the encoder, maximum pulses per revolution and an accurate motion profile at fast speeds.



"You not only want the machine to be fast. It also has to be accurate, repeatable and easy to use. Mitsubishi Electric Automation allowed us to achieve that in the Megomat 2000 wire processing machine."

– Reggie Butler, General Manager, Schaefer Megomat USA, Inc.

CHALLENGE

In wire processing, speed reigns supreme. But speed cannot prevail over accuracy. In order to meet the demands of automobile harness manufacturers, wire contract manufacturers and panel shops – all of whom need to increase production levels to stay competitive – wire processing machines must be fast, accurate and reliable. Schaefer Megomat wanted to create a machine that would far exceed the industry best in speed, while providing a consistent, repeatable crimp every time. Before the company developed its newest system, the fastest wire processing machines in the market could produce 5200 pieces per hour. Schaefer Megomat's goal was to create a state-of-the-art, fully automatic wire processing machine that could not only surpass the highest production speeds in the industry, but would also offer unequaled accuracy, reliability and simplicity.

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SOLUTION

After researching solutions from several automation product manufacturers, Schaefer Megomat chose Mitsubishi Electric Automation because the company met its requirements for product quality and real-time support. "Our customers can't afford to have a machine down, so real-time support was an important factor in choosing Mitsubishi Electric," said Reggie Butler, general manager, Schaefer Megomat USA, Inc. Mitsubishi Electric was also the only company to produce servomotors with antivibration technology, which helps to meet the high accuracy needs of wire processing. Working with Mitsubishi Electric Automation and its distributor, Price Engineering, Schaefer Megomat developed the Megomat 2000 using Mitsubishi Electric's Q Series PLC, Q172DSCPU motion controllers, and J3 servomotors. The Megomat 2000 is not only fast, but provides consistent and repeatable wire processing. The compact, swivel arm system is suitable for multiple applications, including end stripping, crimping and seal loading of a single wire, and allows for a broad range of wire size and terminal combinations. It also includes a 22-inch wide touch screen for easy programming, and a dual-wire straightener. The Q Series PLC allows production data retrieval and integration with ERP systems--capabilities particularly prized by the automotive industry.

RESULTS

At 6100 pieces per hour, the Megomat 2000 can reach higher speeds than Schaefer Megomat's previous generation machines and delivers the highest known speeds in the market. "The Mitsubishi Electric drives and controls allow for much greater speed and movement of the axes than before," said Butler. "We also get an incredibly accurate motion profile even at amazingly fast speeds," he added, explaining that inaccuracy in wire processing can result in loose strands that can create a malfunction or short.

Schaefer Megomat also customized the HMI, with help from Price Engineering and Mitsubishi Electric's MC Works64™ automation software. The interface is extremely easy to use, which reduces training time on the system. The intuitive HMI also includes real-time video, allowing for quick troubleshooting and remote fixes. Besides speed, accuracy, reliability and simplicity, other benefits of the Megomat 2000 include reduced wire scrap and fewer support calls, resulting in cost savings for the customer.

"You not only want the machine to be fast. It also has to be accurate, repeatable and easy to use. Mitsubishi Electric Automation allowed us to achieve that in the Megomat 2000 wire processing machine," said Butler. "Nobody thought we could pull it off. We are very proud of what we have been able to accomplish in just 18 months."

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