Initial Challenge

A large medical OEM customer requested that Tessy Automation develop a new machine to automate manufacturing syringes for medical diagnostics, including a COVID-19 medical application.

Solution

Tessy Automation's Syringe coating machine includes four Epson G6 SCARA robots employed at various stations within the machine to cost-effectively and efficiently automate syringe manufacturing.

COMPANY

Tessy Automation

LOCATION

Meadville, PA

FOUNDED

1983

WEBSITE

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Rising to the Challenge

Adopting Epson Cleanroom SCARA Robots for Medical Syringe Manufacturing

For more than 35 years, Tessy Automation has designed and manufactured an extensive range of electromechanical automation solutions. The company specializes in solving the unique challenges of contract manufacturers and operations that produce complex components. Its team of experienced engineers and project managers help customers develop a clear vision of automated processes and then deliver custom projects that align with their goals.

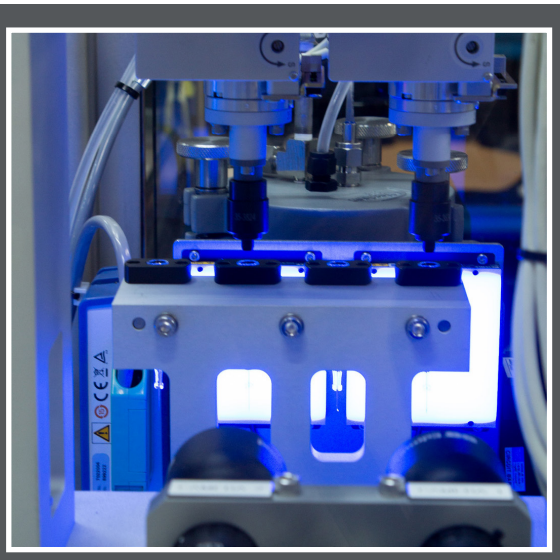
Given these attributes, it comes as no surprise that a large pharmaceutical OEM who needed to automate a process in the manufacturing of medical syringes came to Tessy Automation for help. The request from the customer was to develop a new machine to automate the handling of syringe manufacturing using a proprietary coating process that would give plastic syringes properties similar to glass.

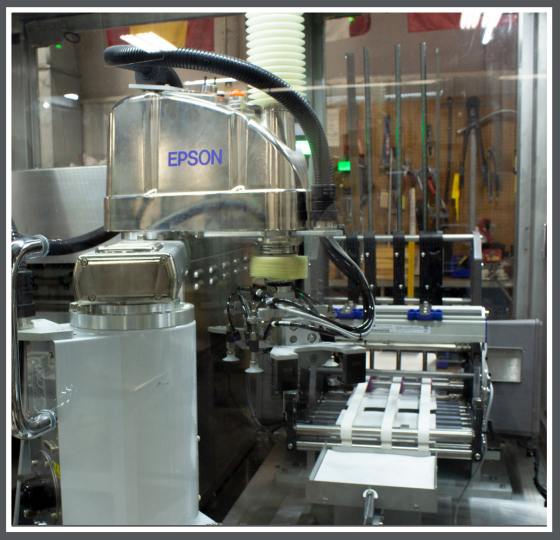
Historically, the OEM's competitors produced syringes from glass, which is more costly than using plastic. The OEM's new process, especially when automated, would reduce costs, improve properties and make mass production feasible.

> **"Epson's high-speed G6-Series SCARA robots with RC+ software enable precision processes with exceptional repeatability and reliability, delivering on Tessy Automation's brand promise of solving unique challenges with complex components."**
>
> - Brent Martz, *Sales & Marketing Manager, Tessy Automation*

The Medical and Life Science Industry Demands Precision with Repeatability

Tessy Automation chose Epson's G6 Cleanroom SCARA robots for the automation solution they were tasked with. Epson is the #1 SCARA robot manufacturer in the world with four decades of expertise, so it was the logical choice to ensure a successful outcome for its client. Epson's 6Kg G-Series Cleanroom SCARA robots are well known for their fast, high precision and high repeatability assembly, pick and place capabilities. These attributes make them ideal for the medical sector and are the reasons they are frequently used when speed and precision are vital to the manufacturing process.





Operations in a Clean Environment

The concept phase of the syringe coating machine began in 2018, when engineers were challenged with how to automate syringe manufacturing, including coating the inside of the syringe to achieve a glass-like finish. What's more, the machine had to be suited for cleanroom pharmaceutical manufacturing, an environment that requires very low particulate emissions and stringent cleanliness standards.

Epson SCARA robots are world renowned for their industrial reliability and performance capabilities. When combined with their ease of use and application versatility within the Epson RC+ development environment plus an ISO-3 rating and compliance with cleanroom standards, Epson proved to be the best choice for Tessy Automation's design. The company ultimately employed four Epson SCARA G6 Cleanroom robots at various stations within the syringe coating machine.

Meeting the Challenge with Synchronized Performance

The first of Epson's G6 Cleanroom SCARA robots removes syringes from a tub in preparation for the coating process. After the syringes are coated at a rate of 38 parts per minute, they pass through various inspection stations. The syringes are also siliconized, temporary caps are changed to final caps, and then they are x-ray inspected before they are added back into a plastic container by a second SCARA robot.

Depending on production requirements, each container may contain 100 to 160 syringes.

A third SCARA robot picks up a full container, applies an inner and outer cover, and seals it before releasing it to the fourth and final Epson SCARA robot that applies a label with a laser marker.

Tessy Automation chose to synchronize the third and fourth Epson SCARA robots within the same envelope, reducing a production step and creating greater production efficiency.

> **"Epson's partnership with Tessy Automation represents the perfect blend of high-performance product and design expertise which benefits OEMs requiring complex assembly applications in the health and life sciences sector."**
>
> - Bruce Courtney, *Managing Director, Tessy Automation*

Looking to the Future

The syringe coating machine, which was ready for operation in November 2020, proved to be a timely project. The OEM is now working with government agencies to produce mass quantities of cost-effective, high-performance syringes to use in the fight against COVID-19.

Even after the pandemic subsides, the need for innovative, cost-effective medical solutions will continue to grow, and Epson's SCARA robots will deliver the precision and speed as well as safety and cleanroom standards of low particulate emission and easy-to-clean surfaces required. Medical and life science manufacturers will accept no less –for products that affect human health, quality standards can never be too high.

The syringe coating machine is just one example of how Epson and its Platinum partner, Tessy Automation, are working together, blending engineering expertise with highly adaptable robots to build machines that contribute to the future success of the medical and life sciences industry.

Tessy AUTOMATION

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