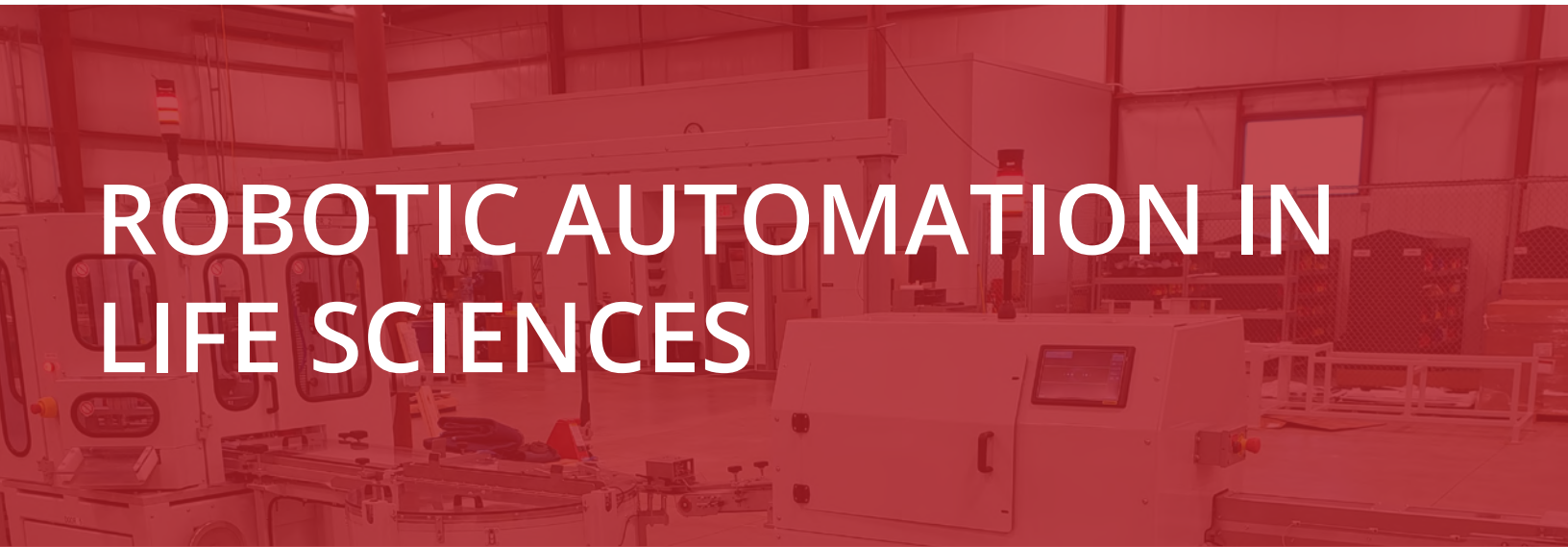




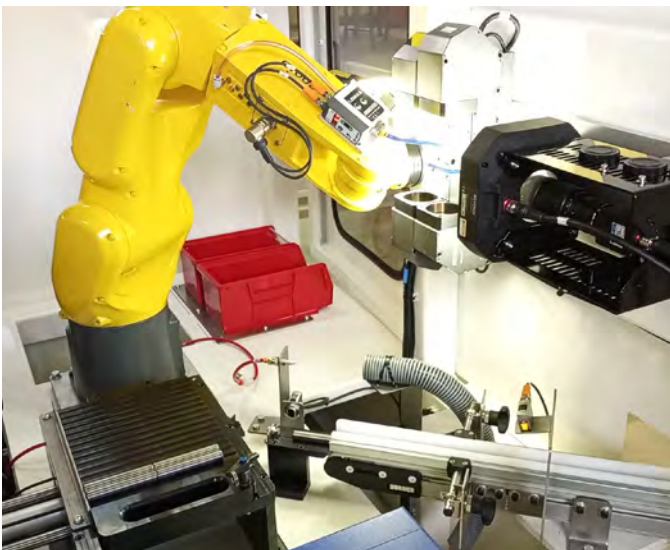
# ROBOTIC AUTOMATION IN LIFE SCIENCES



For over 25 years, Big Sky Engineering has provided innovative industrial automation solutions for diverse applications. Our robotic tools support everything from material handling and assembly to inspection and end-of-line processing. Some of our most popular solutions include robotics for dispensing, tray handling, barcode scanning and tracking, assembly, environmental control, and much more. For projects within the life science industries, we help organizations overcome the biggest challenges facing modern healthcare.

# Challenges And Opportunities Associated With Implementing Robotic Automation In Life Sciences

Life sciences have traditionally involved a diverse array of manual processes, many of which are either monotonous to perform or involve exposure to infectious and hazardous materials. As the capabilities of robotics have expanded, it is now possible to automate many of these processes. Robotic automation in life science applications delivers a vast amount of benefits and was shaped as a response to widespread industry challenges.



# OPPORTUNITIES

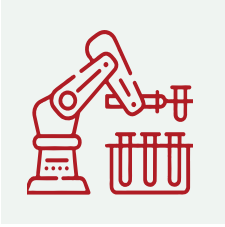
Laboratory and cleanroom environments are well-suited to robotic automation. This technology can perform tedious or complicated manual processes quickly, eliminating the possibility of human error. They are able to streamline complex processes and take over tasks involving hazardous materials to protect human workers and allow them to focus on other tasks. In addition, today's robotics are highly reliable and require minimal maintenance, ensuring a good return on investment.



# CHALLENGES AND DRIVING FACTORS

There are several challenges currently facing the life sciences industry that robotics can help resolve. The latest automation technology has been developed to facilitate increased testing efficiency, reduced production costs, and a more personalized approach to medicine.





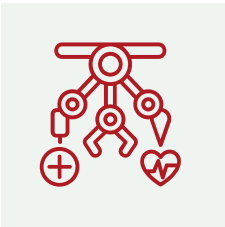
### The Aging Population

A growing elderly population means a higher volume of clinical and diagnostic testing, which is both time and labor-intensive. In addition, an increased testing demand means that process efficiency must be increased to keep up. Robotic automation has the potential to solve this problem entirely. It greatly increases testing efficiency by improving throughput time. It also ensures laboratories can keep pace with demand fluctuations while simultaneously reducing costs.



### Personalized Medicine

Customizing healthcare to meet the needs of individual patients has been a rising trend in recent years. Robotic automation allows companies to accelerate their testing processes and drug development, facilitating modularity and scalability. It also minimizes capital costs and ensures an increased capacity to support demand.



### Outsourced Design

Due to cutbacks on engineering talent, there is a greater need for work to be completed more efficiently and at a lower cost. For any business, speed to market is a crucial aspect of success, and robotic automation allows more resources to be applied within a shorter period of time. Big Sky Engineering is standing by ready to help design a custom solution for your application.



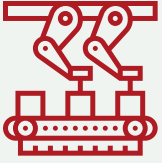
# CASE STUDIES

Big Sky Engineering has partnered with numerous companies throughout the life science industries. Our technology meets the needs of diverse healthcare applications, including:

- + Laboratory automation
- + Cleanroom automation
- + Tube sorters for scanning, organizing, and error-proofing patient samples
- + Solutions for transporting, packaging, labeling, and scanning radioactive products that cannot be handled manually
- + Curing tunnels that accurately maintain temperatures and humidity for storing products that must be carefully controlled

Throughout many of our past case studies, you can see how our robotic systems have delivered improved accuracy, quality, versatility, and repeatability.





### Cap Assembly & Fluid Fill

A client approached us with the desire to expand their assembly operations for COVID-19 test kits. Their old process was low-speed and relied on unpredictable equipment with slow output rates. This created an opportunity for us to automate a COVID test cap filling and assembly machine. We ensured more consistent performance by precisely regulating variability and improving processes while reducing costs.

### Robotic Sorting Work Cell

A purchasing customer asked us to help them produce a sorting machine that would autonomously scan, orientate, and place tube and canister components onto trays and outfeed conveyors. The machine needed to be able to process one incoming unit in under 7 seconds, as well as fit in a small working envelope.

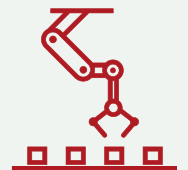


### Packaging Assembly Machine

A client approached us wanting to expand their COVID-19 test kit packaging assembly operations. They had been using an antiquated process that was slow and unpredictable. We created an automation solution that delivered greater consistency. It accurately regulated variability and improved the assembly process for enhanced speed and cost savings.

### Container Packaging Line

A customer came to us wanting a packaging line for their medical containers. We created a solution that integrated multiple types of packaging equipment and integrated equipment into a tight working envelope. This system interfaced with a cleanroom output and used a robot to assemble the shipping container.



## BENEFITS OF WORKING WITH BIG SKY

Partnering with Big Sky Engineering ensures you receive the most innovative automation technology coupled with long-term support from our team. We will carefully evaluate your system's cost-effectiveness, deliver an automation plan that aligns perfectly with your needs, and continue providing customer support long after your project ends.

1

**Evaluation of Automation System Cost-Effectiveness**

Our team carefully considers the results of automating a specific manufacturing process. We will determine whether a custom solution makes more sense than an out-of-the-box one, how to meet the desired production speed, and the expected return on investment.

2

**Long-Term Customer Support**

We provide engineering review documentation, safety risk assessment, FAT pre-training, and a detailed operation manual. In addition, we deliver site acceptance testing (SAT) training, assist with production start-up, and provide follow-up production support. All of our automation solutions are backed by a warranty.

3

**Thorough Development of an Automation Plan that Aligns with Your Needs**

Our partnership begins with a site visit, where we look at the footprint and discuss your project's specific requirements. We will determine ROI by considering how many people are involved with your current process, how complicated it is, and how easily it can be replaced by new technology. We will also calculate the expected production output rate.



After working with you on the design concept, we will then craft a detailed proposal followed by an engineering review and design acceptance. After we're certain our design will meet your needs, we begin purchasing parts and materials. The next step in your project involves our team building and programming your automation solution. After thorough factory acceptance (FAT) testing, your product is shipped and installed. We also provide production start-up acceptance, SAT, and post-sales support.

# START EXPERIENCING THE BENEFITS OF YOUR AUTOMATION SOLUTION

Big Sky Engineering has the technology and expertise required to meet even the most demanding life science automation needs, including cleanroom-grade equipment. Our solutions are fully customized to the needs of each project and guaranteed to provide the improved efficiency you're looking for. To learn more about robotic automation for life sciences, **reach out to our team** with any questions. You can get your project started by **requesting a quote** today.





# ABOUT US

Established in 1998, Big Sky Engineering, Inc.'s mission is to provide economical, comprehensive, and superior automation solutions for the continuously evolving packaging industry. We're dedicated to bringing lean manufacturing processes to our clients, and our commitment to excellence begins at a project's inception and continues long after a product's final acceptance.

**Contact Us**



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