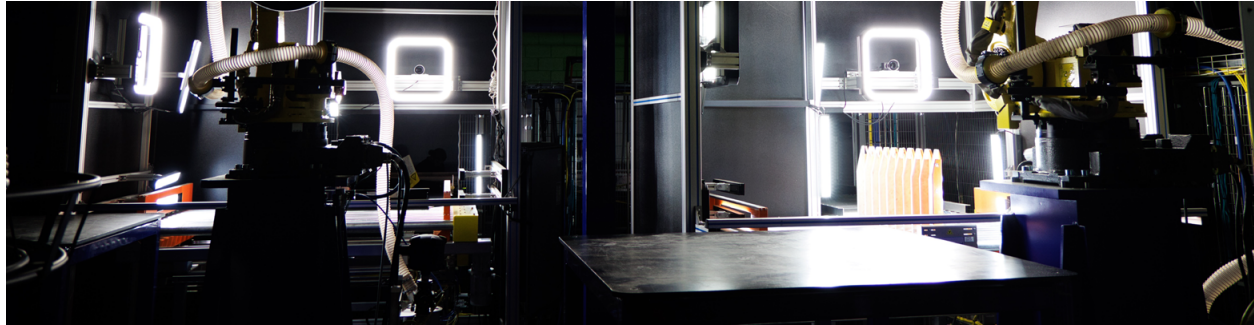




TRANSFORMING A STERILIZATION FACILITY'S EFFICIENCY WITH ROBOTIC AUTOMATION



Discover how AMT revolutionized material handling for a global sterilization leader, combining cutting-edge robotics and AI vision technology to drive efficiency and compliance.

A global leader in sterilization solutions faced mounting pressure to manage growing volumes of products while maintaining rigorous ISO 13485 compliance. Partnering with AMT, they developed an innovative automation system that streamlined product handling before and after sterilization, setting new industry standards for efficiency.

CHALLENGE

The client's reliance on manual labor created operational bottlenecks, increased costs, and introduced risks of human error that could lead to compromised product safety. To overcome these challenges, they sought to automate critical steps in their sterilization process, aiming to reduce human intervention, improve product quality, and enhance overall productivity.

Adding to the complexity, the client faced stringent regulatory requirements, including ISO 13485 for medical device quality management and FDA sterilization guidelines. Compliance demanded rigorous process validation, continuous monitoring, and maintaining high sterility assurance levels to ensure medical devices met safety standards before reaching the market. These challenges called for an innovative automation solution capable of addressing both efficiency and regulatory demands.

SOLUTION

AMT developed an end-to-end automation system that transformed the client's sterilization process, integrating advanced robotics and AI-enabled machine vision to handle products efficiently and ensure compliance with regulatory standards.

The solution automated key stages of the workflow:

1. ROBOTIC INDUCTION SYSTEM

A depalletizing robot accurately orients products for sterilization, ensuring proper spacing within the chamber.

2. SERIALIZATION

Each product is assigned a unique identifier for precise tracking throughout the process.

3. DATA LOGGING

Product labels are scanned and logged to maintain complete traceability.

4. STERILIZATION HANDLING

Products are seamlessly moved into and out of the sterilization chamber.

5. ROBOTIC RE-PALLETIZATION

Post-sterilization, a robotic system re-palletizes the products with 100% pallet integrity, ensuring they exit in the same configuration as they entered.

The process begins with products placed in a pre-sterilization queue. As they move into the robotic induction work cell, a robot depalletizes and organizes them, ensuring optimal chamber placement and spacing. Post-sterilization, the products are transferred to a second robotic system that re-palletizes them while maintaining the integrity of the pallet, ensuring efficient handling and delivery.

By automating these critical steps, AMT's solution increased throughput, reduced manual intervention, and ensured compliance with ISO 13485 and FDA guidelines, setting a new standard for sterilization facility efficiency.



LOOKING TO THE FUTURE

Building on the success of phase one, AMT is excited to further enhance the solution by integrating autonomous mobile robots (AMRs) into the facility's operations. This next phase will streamline product transport across the facility, including moving items from the truck to the sterilization queue, transferring them to wrapping and labeling stations, and delivering them to the shipping dock.

AMRs offer transformative benefits by completely eliminating the risk of human error in product transport. For example, sterilized and repalletized products can be efficiently transported by AMRs to a stretch-wrapping station and then into quarantine storage, ensuring they remain isolated until approved for shipping.

By introducing AMRs, AMT will help the client achieve new levels of efficiency, accuracy, and safety while laying the groundwork for a scalable, future-ready operation. This innovation reflects AMT's dedication to delivering cutting-edge automation solutions that continually drive value for their clients.

[Watch this video](#) to see the sterilization solution in action.

RESULTS

The implementation of AMT's solution is projected to significantly enhance the client's operations. By automating critical steps, the client anticipates a significant increase in throughput, substantial labor cost reductions, and consistent compliance with stringent sterilization standards.

The streamlined product handling process eliminates human contact with sterilized items, preventing cross-contamination and ensuring adherence to ISO 13485 and FDA guidelines. Enhanced physical barriers further mitigate contamination risks, while automation reduces manual handling, allowing the workforce to focus on higher-value tasks such as quality assurance and system optimization.

This transformative solution positions the client to meet current regulatory demands while building a scalable, efficient operation ready for future growth and industry leadership.

Discover how automation can transform your sterilization processes. Contact AMT experts today.

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