

SUCCESS STORY

Odecopack Implements Omron's Sysmac Platform to Revolutionize Palletizing Process



ODECOPACK
USA Office &
Assembly Facility
Houston, TX
odecopack.com



**Eliminate
Manual
Processes**



**Lift Labor
Shortage
Pressure**



Reduce Cost



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Key Benefits

1

Eliminates inefficiencies and increases productivity in palletizing processes through automation, reducing manual labor and improving output.

2

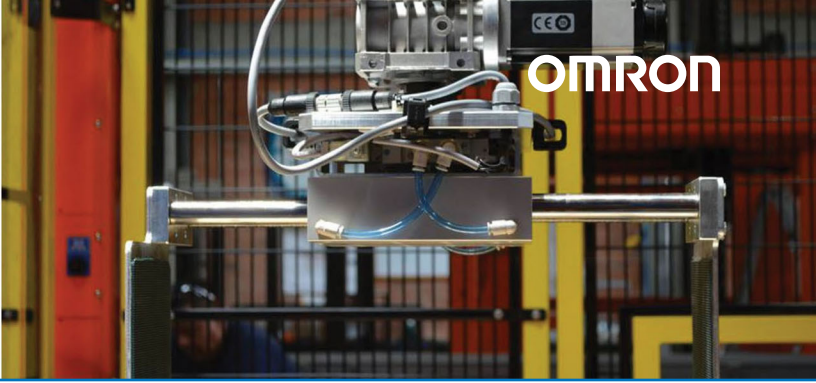
Enhances safety and ergonomics by reducing physical strain on workers and ensuring compliance with safety standards.

3

Customization and futureproofing, accommodating different package types and dimensions while providing scalability and the opportunity to leverage additional efficiencies in the future.

At a Glance

Odecopack revolutionizes the palletizing process by implementing Omron's Sysmac platform. Odecopack specializes in automation solutions for palletizing as an Omron Certified System Integrator. This certification ensures that Odecopack has met Omron's standards for expertise and proficiency in integrating Omron's advanced technologies into their solutions. This solution addresses labor shortages, improves efficiency, and enhances safety in packaging and distribution facilities. By automating the palletizing operation, Odecopack increases productivity, reduces physical strain on workers, and offers customization options for specific industry needs. The integration of the Sysmac platform provides precise movement control, safety compliance, and futureproofing capabilities, positioning Odecopack and its customers for long-term success in the industry.



lead to increased material costs, extensive lead times, and unnecessary overtime shifts. Odecopack's automation of palletizing reduces inefficiencies and empowers packing and distribution centers with off-the-shelf solutions to increase output for facilities with minimal manual efforts and safer operations. Odecopack can go one step further by creating a custom solution to uncommon palletizing applications. Giving facilities a performance edge in a hyper competitive market.

The Challenge

The tight labor markets and increasing consumer demand for ecommerce retail transactions drive the need for efficient palletizing processes in distribution and packaging facilities. Inefficient stacking can lead to underutilized delivery trucks and even ergonomics-safety compliance violations. These challenges are compounded by increasing industry competition, cost pressures, and seasonal consumer demand. To ensure a positive return on investment (ROI) in automation, packaging and distribution facilities must carefully vet and validate capital projects. Commonly with a payback period target of less than two years. Automated palletizing processes aim to minimize waste through Lean Six Sigma, but the layout requirements of operations constantly change, requiring flexible automation. Without built-in flexible and automated palletizing equipment, facilities can accumulate technical debt, delaying future projects and increasing capital project payback periods.

Integration between servos, controllers, and safety devices can be costly, complicated and slow without an all-in-one motion, control, and safety automation platform. Traditional automation methods suffer from inefficiencies due to multiple software packages required to control all devices,

firmware incompatibility, motion network latency, and multiple communication protocols. Even with extra effort to address motion axis jitter and accommodate safety controllers, OEMs may struggle to meet safety standards and cycle time targets while maintaining automation flexibility and ensuring a strong ROI.

Omron Solution

Through years of industry experience, Odecopack addresses these prevalent challenges by collaborating with Omron Automation to create effective palletizing products. By choosing Omron's Sysmac all-in-one automation platform as their foundation for their machines, Odecopack is able to simultaneously eliminate the integration challenges between motion, control, and safety to increase overall efficiencies of the final pack out process. The integration of a Sysmac machine automation controller with servo drivers and a safety controller using the EtherCAT® network allow for precise movement control over the four coordinated axes on the cartesian palletizer that features a distinctive Core-XY motion platform. The EtherCAT® refresh rate paired with guaranteed packet delivery creates the deterministic motion required to offer an integrated system with higher motion and safety performance. This, in turn, provides end users with a solution to remove their dependency on manual intensive tasks in the palletizing operation by reducing heavy physical strain on employees and increasing cycle time throughput.

To further increase the power of the Odecopack solutions, Odecopack goes one step further by using multiple Frequency Inverters to control the speed, acceleration and rotation of conveyors. Optimizing the transportation of boxes and pallets for each shift during cyclic seasonal requirements.



To maximize pallet space while ensuring stability of loaded pallet is critical for both reducing cycle time and maximizing worker safety. The synchronized movement of the cartesian system's four axes with all motion servos allows for the best route selection with a smooth trajectory, no matter the package coming down the variable speed conveyor.

To stand out in a competitive industrial landscape, Odecopack focuses on solutions tailored to specific industry needs of end users, rather than solely focusing on cost-cutting. Due to tight competition, it can be difficult to offer consistent solutions without proving an above market ROI of the entire scenario. The need for customization with palletizing packages of a variety of different shapes and sizes is ever-growing. The logistics, as well as food and beverage industry are looking for solutions where they can fully customize palletizing to be more efficient with package type and dimension consolidation. Odecopack and Omron have created a solution to give customers a solution today by reducing technical debt to provide the opportunity to leverage additional efficiencies in the future.

The Benefits

The benefits of the Omron Sysmac platform extend beyond labor and efficiency improvements during operation to the hidden costs in commissioning by increasing first pass yield. Sysmac's One Controller, One Connection, and One Software integrate control, safety and user interface in the same network with the use of a single software, Sysmac Studio. Here, Odecopack engineers leverage the function block library, enabling quick and easy axes synchronization by eliminating rungs of ladder logic. To support version control on the plant floor, the function blocks are lockable. To ensure safety performance alongside motion precision during

3D simulation, safety controllers are programmed in the exact same development environment. Having both safety and motion control in the same program, Odecopack gathers valuable data from the machine's devices to introduce safety functions such as active torque limitations which prevents damage to products or the machine itself. To top it all off, Odecopack reduces wiring and sensor replacement downtime by using IO Link decentralized I/O modules enhancing overall system flexibility and adaptability.

The implementation of the Omron Sysmac platform yields significant results and benefits for Odecopack's users. One of the immediate outcomes was a reduction in commissioning time to integrate the Odecopack solution into their existing systems. The intuitive and efficient programming capabilities of the Sysmac platform streamlined the implementation process, allowing the unique Odecopack solution to be up and running faster than ever before. Sysmac also allows a reduction in downtime that not only increases productivity, but also facilitates possible changes to the machine functionality, providing Odecopack with the flexibility to adapt to evolving industry needs. By consolidating motion, safety, and control features into one software package, the Sysmac platform enables the harmonization and synchronization of the palletizer's four axes. This synchronization not only improved accuracy and throughput but also makes troubleshooting more efficient through motion simulation, reducing downtime further. This saves valuable time that would have been spent searching for issues. The integrated motion controller improves the trajectory of the mechanical systems, resulting in smoother movements and reduced cycle time.



The integration of the EtherCAT® network in the Sysmac platform enhances motion accuracy, safety, and control. The exceptional real-time performance and high-speed communication capabilities of EtherCAT®, along with the Safety over EtherCAT (FSoE) feature, allows for the integration of safety-related functions into the same network. This eliminates the need for separate safety networks, simplifying the overall system architecture and overall solution cost. The use of EtherCAT (FSoE) enabled Odecopack to achieve a higher Safety Category in the servo motors' safety stop control, ensuring operational safety and compliance with safety standards. The compact size of Omron controllers, IO, and servo systems enables Odecopack to achieve a remarkable reduction in the size of the control panel by using less components and wiring. This not only contributed to a more compact palletizer design but also resulted in cost savings on materials.

Future Opportunities

The adoption of the Omron Sysmac platform brings significant results and benefits for Odecopack. The reduction in commissioning time, optimization of control performance, leveraging of the EtherCAT® network, panel size reduction, and future-proofing capabilities all contribute to increasing productivity, improving efficiency, and enhancing safety.

Odecopack building their unique solution in the Sysmac platform not only addresses immediate challenges but also positions Odecopack customers for long-term success in the industry.

Conclusion

The success of Odecopack highlights the positive impact that advanced automation solutions can have on industrial manufacturing as a whole. By addressing the challenges of labor shortages, customization needs, and flexibility requirements, Odecopack is significantly improving their productivity, efficiency, and operator well-being. By doing so, Odecopack is not only improving their own operations but has also set a precedent for the industry. The integration of Omron's controllers, servo drivers, and safety components through the EtherCAT® network allows for precise control of movement, eliminating the need for undervalued manual labor, and reducing physical strain on employees. Using intuitive programming software and the consolidation of motion, safety, and control features has streamlined processes and improved overall control performance. These solutions demonstrate the transformative power of automation in the packaging industry, paving the way for increased productivity, improved safety, and long-term success.

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