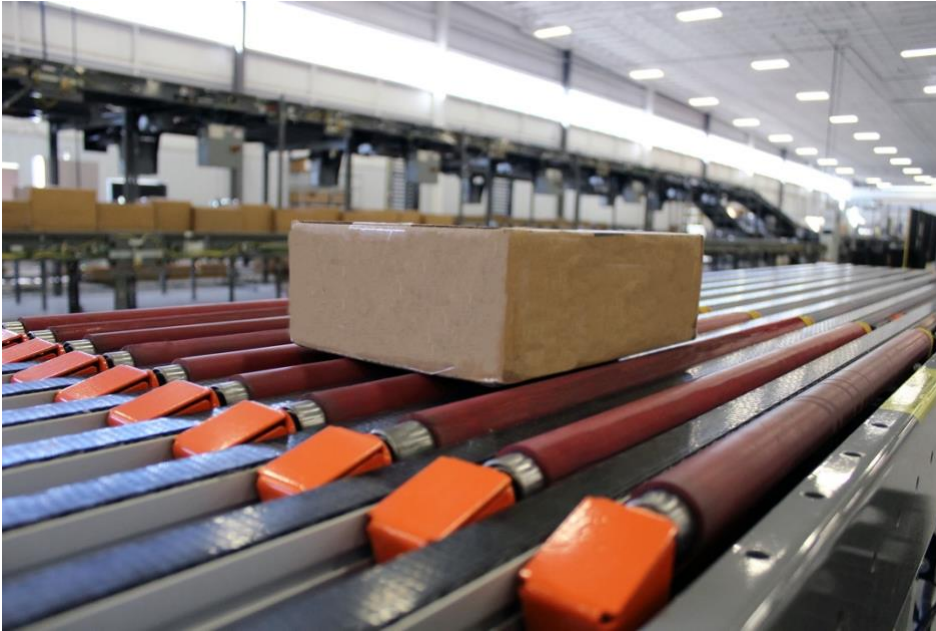


Automated Shipping System for E-Commerce Fulfillment Center Retrofit



PROJECT SCOPE

System Design & Integration
Consultation & Analysis,
Mechanical & Electrical
Engineering
Warehouse Controls Systems
Mechanical-Electrical Installation

INDUSTRY

E-Commerce Retail

MHS Conveyor Equipment in a Fulfillment Center (photo credit: MHS).

Under One Roof Methodology SilMan Industries takes a multidisciplinary approach to providing comprehensive solutions for industrial and warehouse clients. With complete in-house design, engineering, fabrication, controls, installation, and project management capabilities, paired with self-performed civil, mechanical, and electrical teams, SilMan operates as one agile team able to handle complex system integration projects.

The Client's Warehouse Automation Situation

Distribution and fulfillment centers commonly face challenges related to inefficient order fulfillment processes, limited capacity, accuracy, and responsiveness. Outdated warehouse automation systems such as sorting and conveyance equipment combined with constrained facility footprints make it challenging to handle fluctuating order volumes and meet rising consumer expectations for speedy delivery.



SilMan tailored sortation solutions to overcome these universal growing pains for a leading distribution e-commerce operation through various upgrades. These upgrades ranged from new high-speed automated sortation systems to custom-engineered equipment integrations and retrofits.

Our one-team philosophy provided unmatched value via seamless collaboration and accountability across design conception through ongoing post-implementation support. With in-house professionals executing throughout every project phase, SilMan once again demonstrates its commitment to a vibrant vendor-client dynamic to foster true partnership.

Automated Warehouse Project Overview

The project centered around a major upgrade to an existing fulfillment center's automated shipping sorter system to enhance sorting capabilities. The client wanted to increase the number of shipping sort destinations from six to twenty-two. This expanded granularity would allow higher volumes of orders to be processed while also decreasing labor hours and reducing the overall time it takes to fulfill and ship orders.

The upgrade was performed within the facility's existing footprint, which added a layer of complexity to the project. However, SilMan Industries provided an integrated solution involving the replacement and reconfiguration of conveyor systems, print/apply stations, and other critical components of the fulfillment process. The newly upgraded system will handle over 40 units per minute, effectively increasing the client's order fulfillment capacity and adding granularity to the sortation process.

The Warehouse Automation Challenge

The automated shipping system project presented several pivotal challenges that demanded SilMan Industries tap its substantial creative problem-solving capabilities and conveyor systems design expertise.

Integration with Existing Sortation Systems

Creating a unified system required seamlessly integrating the new sorting equipment and conveyors into the fulfillment center's current order pack-out infrastructure. Furthermore, the full integration and installation were to be completed within two weeks. This integration was critical for continued operations and highly complex, given the need to bridge new and legacy technologies. The SilMan team conducted in-depth analyses of requirements to craft the solution.

Space Optimization for Warehouse Automation Systems

The project required the development of an optimal layout that added significant functionality within the facility's confined existing footprint. Expanding the facility's square footage would have added excessive costs, and delays were not an option. Creative space planning was vital. By rethinking the



Warehouse Automation System Solution

SilMan Industries engineered a multi-pronged technical warehouse automation solution leveraging its broad in-house expertise:

Advanced Sorting Technology

Installing a high-velocity 22-destination TGW/MHS bi-directional NBS sorter was pivotal for radically enhanced sorting accuracy tied to zip codes. This robust, industrial-grade equipment offers the configurability needed for future growth and peak loads.

Warehouse Distribution Equipment Retrofitting

SilMan's intricate understanding of materials handling synergies allowed existing conveyors, scanners, and other automation devices to be incorporated, saving costs and minimizing changes. Targeted new conveyor modifications, such as a spiral curve, were required to complete the system.

Custom Engineering Design

With every client's operational environment unique, SilMan deployed its engineering teams early on to create tailored mechanical, electrical and controls designs matching the client's precise specifications, equipment, workflows, and objectives. No off-the-shelf solution can deliver such a customized fit.

Controls and Software Integration

To enable a unified infrastructure, SilMan utilized UNISON, the company's proprietary WCS, for advanced standardized controls and software for seamless communication between the sorters, label applicators, scanners, print/apply, in-line weight and dimensioning, and the client's warehouse management system. This interconnectivity delivers real-time visibility and responsive automation.

On-site and Remote Support

SilMan leveraged both on-site and remote support staff before, during, and after deployment to methodically align all hardware, software, and controls for precision performance. Ongoing fine-tuning refinement continues to optimize up-time and throughput.

By tapping SilMan's breadth of experience delivering bespoke materials handling advances, the exhaustive solution elevated a constrained facility to new heights of efficiency, precision, and scalability.

Projected Fulfillment Impact

By all key metrics, the fulfillment center upgrade is expected to deliver tremendous benefits:



Increased Fulfillment Capacity

The state-of-the-art sorter and optimized layout empower the facility to handle higher throughput, which directly expands the volume of orders that can be fulfilled daily.

Reduced Labor, Time, and Shipping Costs

Automated sorting and conveyance substantially reduce manual labor requirements and processing durations. Orders traverse the system rapidly to accelerate delivery timelines and provide precision during internal package sortation.

Furthermore, zip code level specificity provides efficiencies to the client's parcel carrier, reducing the client's shipping expense.

Error Reduction

Advanced controls, full integration between equipment, and accuracy-enhancing updates have minimized the opportunity for human errors, improving quality assurance and client services.

Together, these impactful improvements will drive significant productivity and throughput gains long into the future. Easily quantifiable reductions in operating expenses combined with enhanced client service levels deliver a high return on investment that cements the solution's success. With labor shortages and demand uncertainty, the upgrade's gains become even more crucial over time.

Automated Fulfillment System Equipment

Project Partners

Conveyor	MHS / TGW
Print/Apply	Panther
Scanners	Cognex
In-Motion Scale	Wipotec
Motor Controls	SilMan Industries, Unison WCS



SilMan Your Partner for Industrial Projects

SilMan Industries' integrated approach to project logistics brings immense value by consolidating all required capabilities under one roof. By self-performing nearly every aspect of complex industrial upgrades while facilitating collaboration across involved stakeholders, SilMan delivers solutions optimized for the singular challenges at hand rather than forcing one-size-fits-all prescribed applications.

This multidisciplinary coordination perfectly addresses the intricate obstacles confronting high-volume distribution and fulfillment centers. SilMan offers turnkey account ability spanning conceptual engineering reviews to post-implementation enhancements by directly owned expertise:

Structural, mechanical, electrical, automation, controls, and software domains

This enables both holistic assessment during planning phases and agile corrections when unpredictable hiccups emerge during execution.

Rather than transactional vendor relationships, SilMan strives to build long-term partnerships empowered by accountability, transparency, communication, and relentless commitment to quality. Getting every detail right is personal for the tight-knit SilMan team across technical competencies and project management.

Moreover, by providing ongoing support, SilMan ensures continuous optimization after go-live rather than disappearing, as many Integrators do. This emphasis on adding value above and beyond initial contracts establishes trust—the essential currency for partnerships poised for expansion.