

AutoStore

Empowered by PULSE Integration

Goods to Person Storage System Optimization





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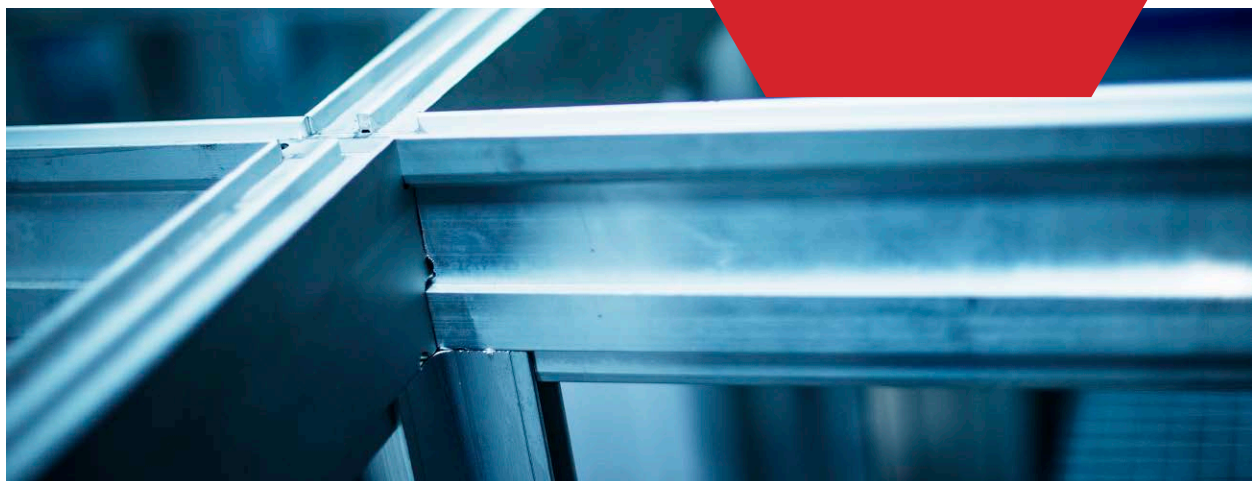
Introduction

AutoStore is the cube storage pioneer reducing storage footprint by 75% when compared to other storage solutions.

AutoStore eliminates walkways and shelving by utilizing the highest density cube storage of any goods-to-person system.

Numbered bins are stacked vertically and compactly in an aluminum grid system that can be built around columns or pillars accommodating user facilities.

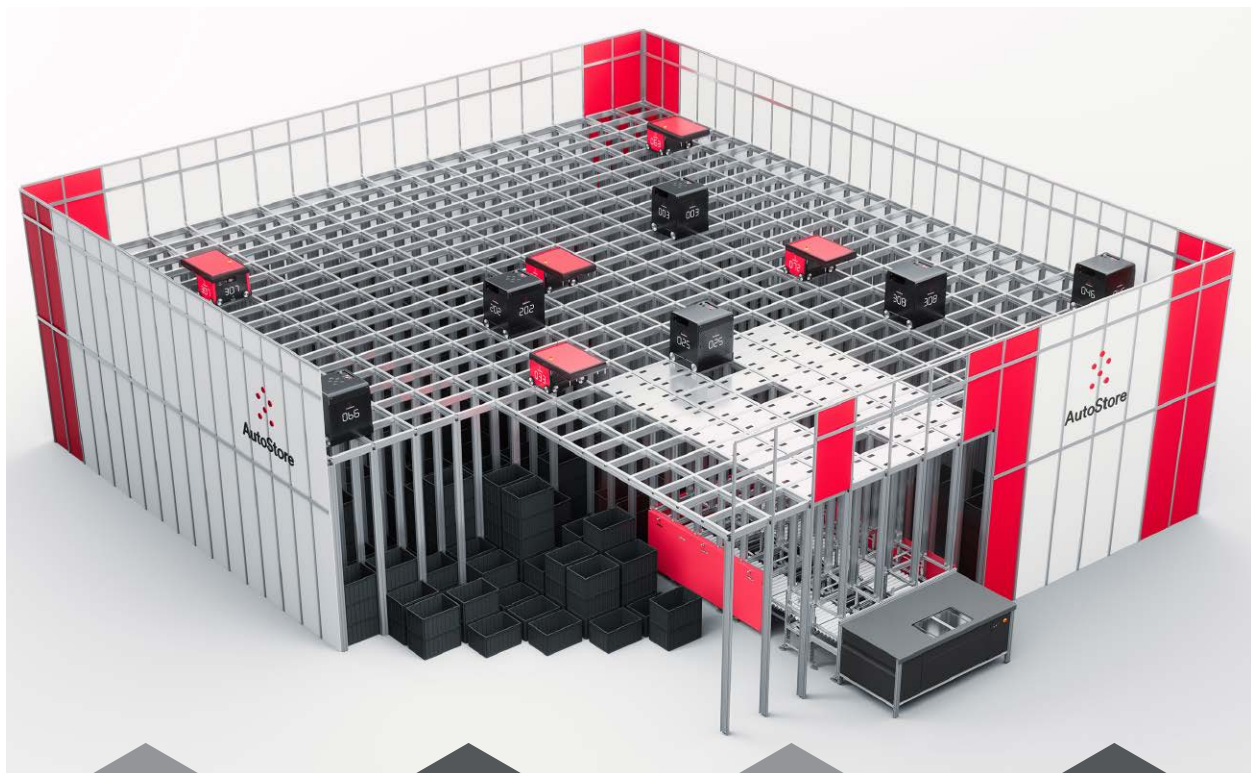
*AutoStore delivers
ultra-dense scalable
storage solutions.*





About AutoStore

AutoStore consists of a modular, three-dimensional grid of self-supporting bins that are retrieved by robots and delivered to pick stations. The robots travel across the top of the grid, by sophisticated algorithms allowing them to work independently or collaboratively. The retrieval of bins is based on the orders required by pickers. Bins may contain single SKU or be subdivided into multiple SKU locations.



SPACE
REDUCTION

INCREASED
EFFECTIVITY

UNBEATEN
UP-TIME

FLEXIBLE &
FUTURE
PROOF

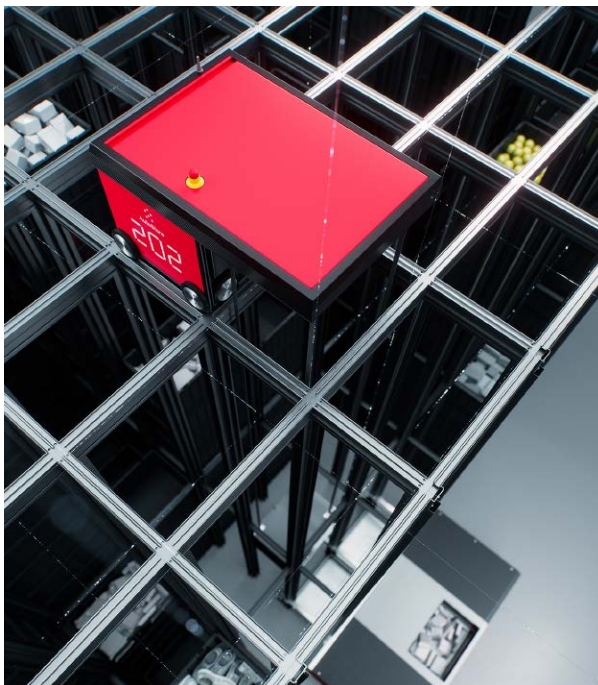


AutoStore Modules

The AutoStore system consists of five modules:

Robot

Robots drive on the top of the grid to retrieve bins from top to bottom using gripper plates. All robots are wirelessly connected. The Red Line (R5) will recharge as needed or when not in use. The Black Line (B1) will replace its battery pack and continue working through the night.



The Red Line (R5)

- Powered by rechargeable batteries and operate autonomously on top of the Grid
- Each Robot features a lift that allows it to pick and place Bins in the Grid
- The control system sends orders wirelessly to the Robots, directing them to and from the Ports and ordering them to recharge as needed

The Black Line (B1)

- The B1 is a higher-speed Robot featuring an internal cavity design. Able to accommodate taller Bin heights, accelerate faster and reach higher driving speeds
- The internal cavity design, also allows for a smaller footprint per Robot further improving Robot trafficking and system performance
- Battery packs are exchanged quickly for 24/7 operations



AutoStore Modules

The Grid

An aluminum grid contains the stacked bins symmetrically while providing top line tracks for the robots' driving function. The grid can be designed to match a variety of unique building geometries including columns.

Bins

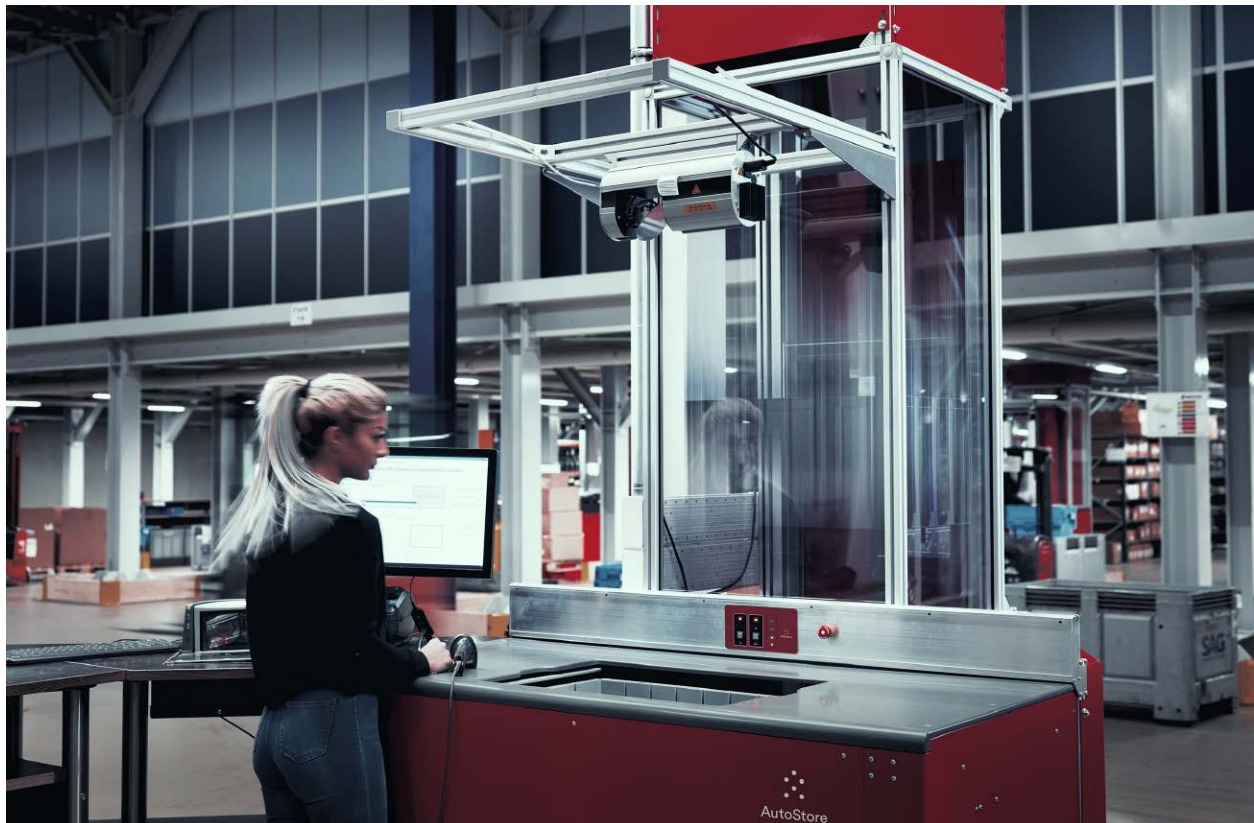
Bins are made of high-density polyethylene (HDPE) or polypropylene (PP-ESD) and can be 100% recycled into another form. Bins can be subdivided into 32 smaller compartments using bin partitions. Bins are uniformly stacked to hold inventory and support the bins above.

Ports

There are various types of ports; workstations where the bins are presented, for picking and replenishing. (Relay Port, Carousel Port, Conveyor Ports)

Controller

This is the mechanism that is the database command center and traffic control unit for the AutoStore system.





System Configuration for Productivity and Scalability

There are three factors that are needed to determine the scalability of design: Grid size, Robots, Pick Stations. Information used to guide configuration decision making should include historical data, the number of days of inventory to be held by the system, desired throughput, the ratio of SKU, growth rate, and storage requirements.

Grid Size

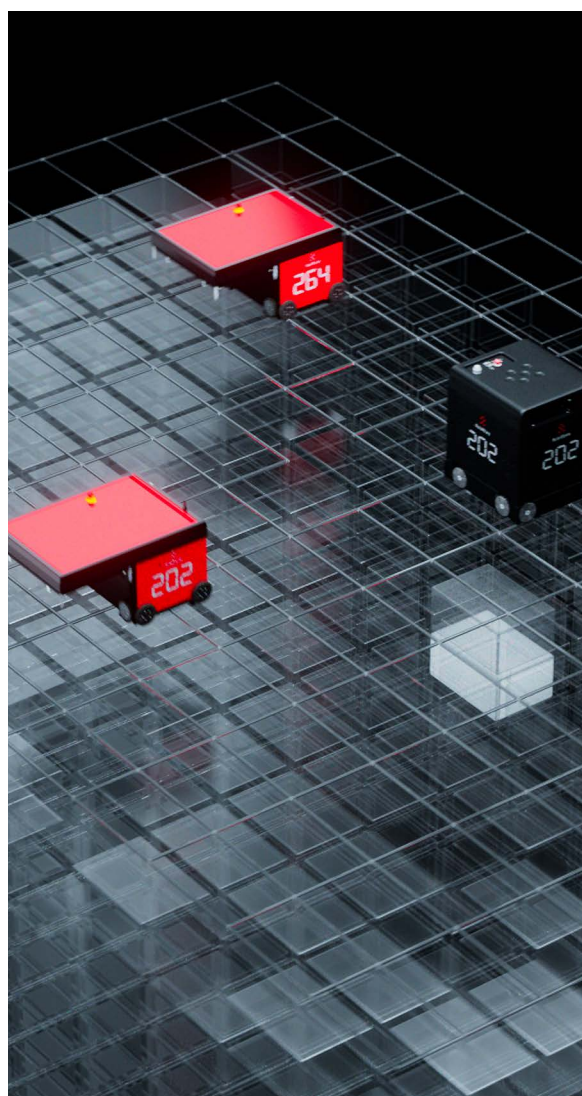
The grid itself is the framework of the system. As inventory grows, the empty areas of the grid can be populated without any interruption in operation. When expansion becomes necessary, one section can be isolated for shut down, allowing the remainder of the robots to continue to service pick station ports while the expansion structure is constructed.

Robots

AutoStore robots can be added on an ongoing basis. As those requirements for throughput change, more robots can be added without any disruption to operations.

Pick Stations

Pick stations are a scalable feature but require planning during the initial configuration. The system is structured to accommodate the need for additional pick stations beyond the initial configuration. When new stations are required, they can be installed within hours. Typically, the number of robots and the number of pick stations have a direct relationship depending on the needs of the system. Integrators analyze historical data and the system to optimize the number of pick stations and robots required to meet system throughputs.





Software Driven Application

AutoStore connects seamlessly with a system's WMS. AutoStore, combined with PULSE Integration software, seamlessly connects to WMS systems.

Warehouse Control System (WCS)

WCS acts like a conductor in an orchestra, ensuring that individual pieces of material handling equipment perform with harmony, precision, and efficiency.

Warehouse Execution System (WES)

WES is the middleware between ERP, WMS, and the resources necessary to perform the various tasks. These resources include workers as well as material handling automation. The WES communicates with resources to collect information directing work efforts such as fulfillment, replenishment and shipping.

Warehouse Management System (WMS)

WMS is a software application designed to support and optimize warehouse functionality and distribution center management.

These systems facilitate management of daily planning, organizing, staffing, directing, and control the utilization of available resources and inventory to move and store materials into, within and out of a warehouse.

*AutoStore
combined with
PULSE Integration
software meets
all your needs.*

