



*Craftsman*  
STORAGE SYSTEMS

## AUTOMATED STORAGE AND RETRIEVAL SYSTEM

A Division of

*Craftsman*  
AUTOMATION



## "EFFICIENT STORAGE SOLUTION"

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**\$240 Million+** Turnover

**3200+** Employees

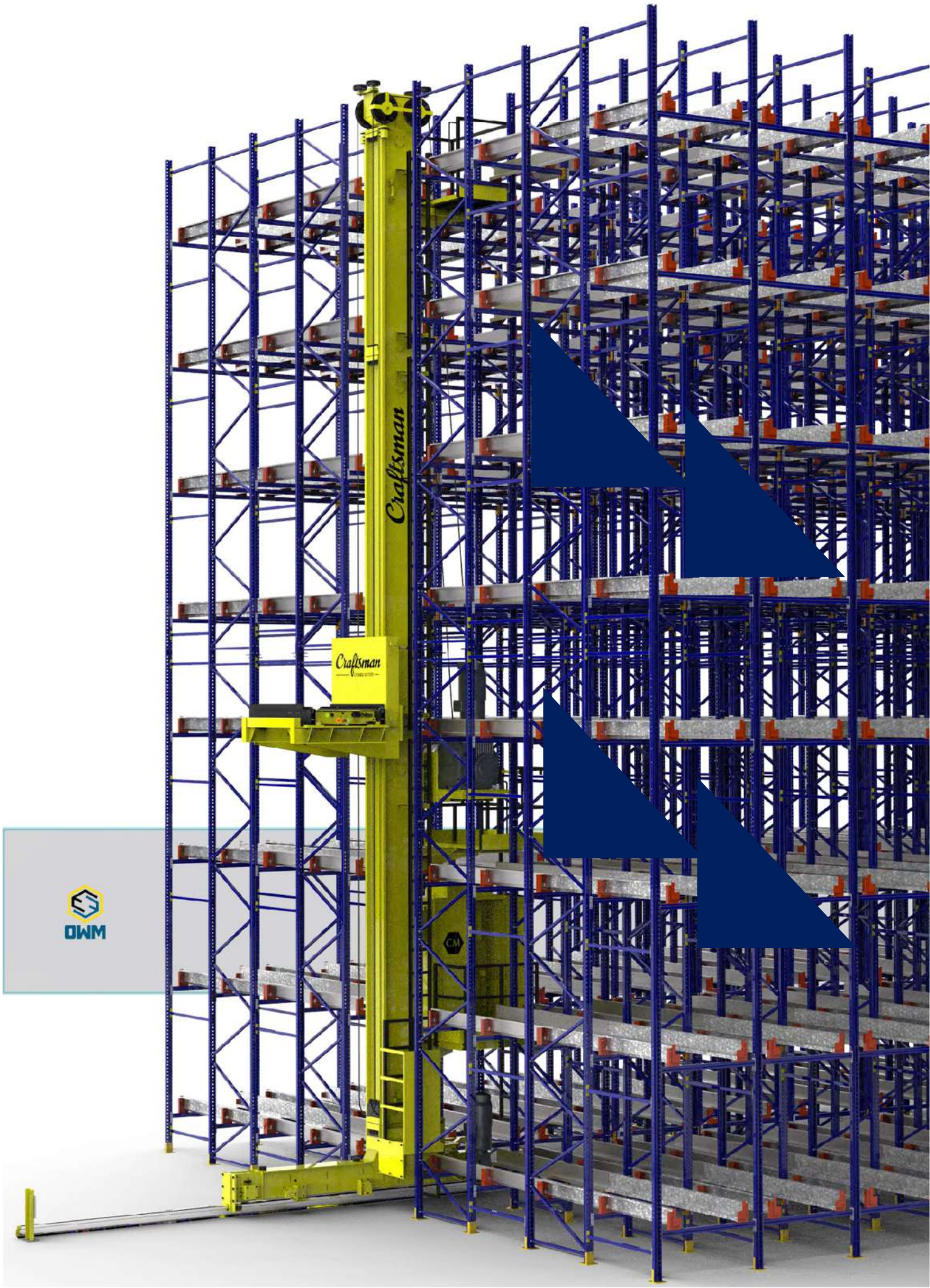
**35+** Years of Manufacturing Experience

**8+** Manufacturing Facilities

OWM & Craftsman Storage Systems, Offers Completely automated pallet ASRS Single Deep/ Double Deep Solutions, Miniload ASRS, Conveyors, and WMS Solutions. With the state-of-the-art components and no compromise on safety and specifications.









# PALLET ASRS CRANE

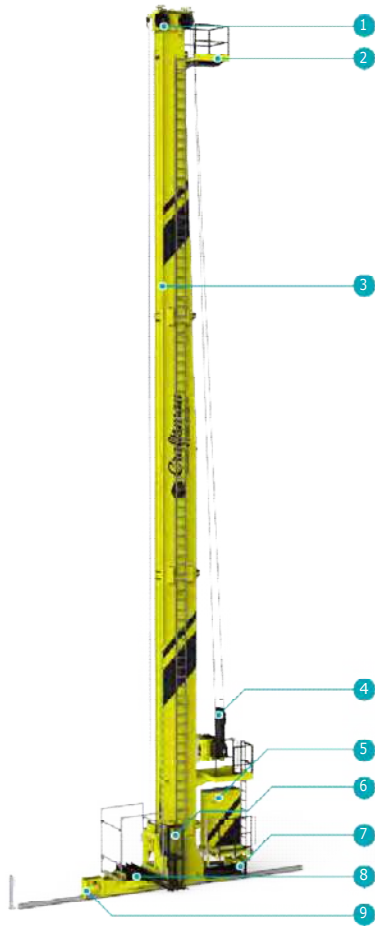
Automated storage and retrieval machines which run on rails, with a single or double mast frame depending on the requirements of the system. Equipped with telescopic forks, for the storage and retrieval of pallets from single or double deep racks, making this solution highly adaptable to a wide range of materials and handling needs.



## PALLET

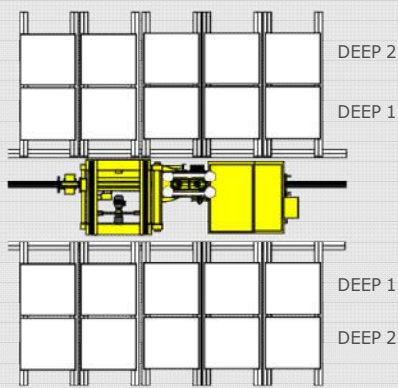
AS/RS Stacker cranes- Designed according to FEM specifications, our AS/RS stacker cranes are individually engineered and customized to suit customer specific storage in terms of pallet dimensions, weight and throughput requirements. Up to 40 pallets In & Out per hour per crane.

To overcome vibrations in the mast during operation, anti oscillation devices and damping programs are implemented.

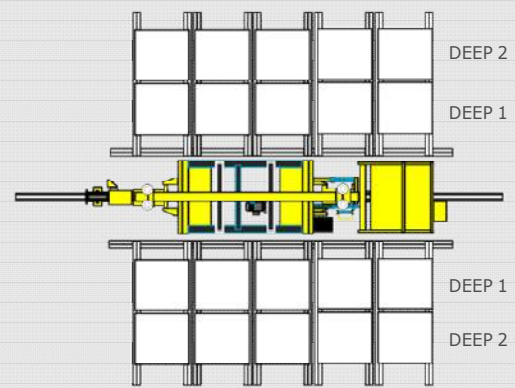


1. Top guide assembly
2. Maintenance platform
3. Mast
4. Lifting unit
5. Electrical cabinet
6. On board cabin
7. Travel drive
8. Lifting cradle with fork
9. Lower guide base

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SINGLE MAST



DOUBLE MAST

TOP VIEW



Guaranteed Pallet  
Throughput



Controlled  
Inventory



24/7 Availability



High Efficient  
Regenerative Drives



WMS  
Operated

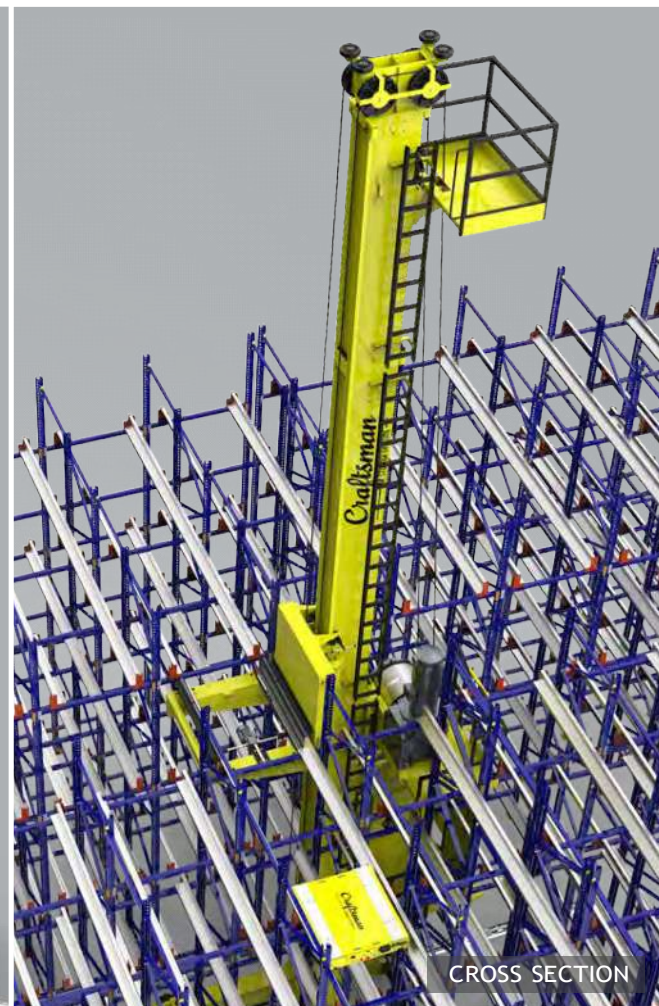


# CRANE SHUTTLE ASRS



Our Pallet shuttle systems are incorporated with Stacker Cranes for higher density storage racking. The stacker crane carries out movements from input and output locations to the storage channel replacing forklifts for faster and efficient material flow.

The pallet shuttle then moves with the pallet load, from the crane, to the innermost free storage location. High density storage racks are installed on either side of the working aisle hence only one aisle space is required. The shuttle and the stacker crane are managed by our WMS software, which administers the warehouse operations.



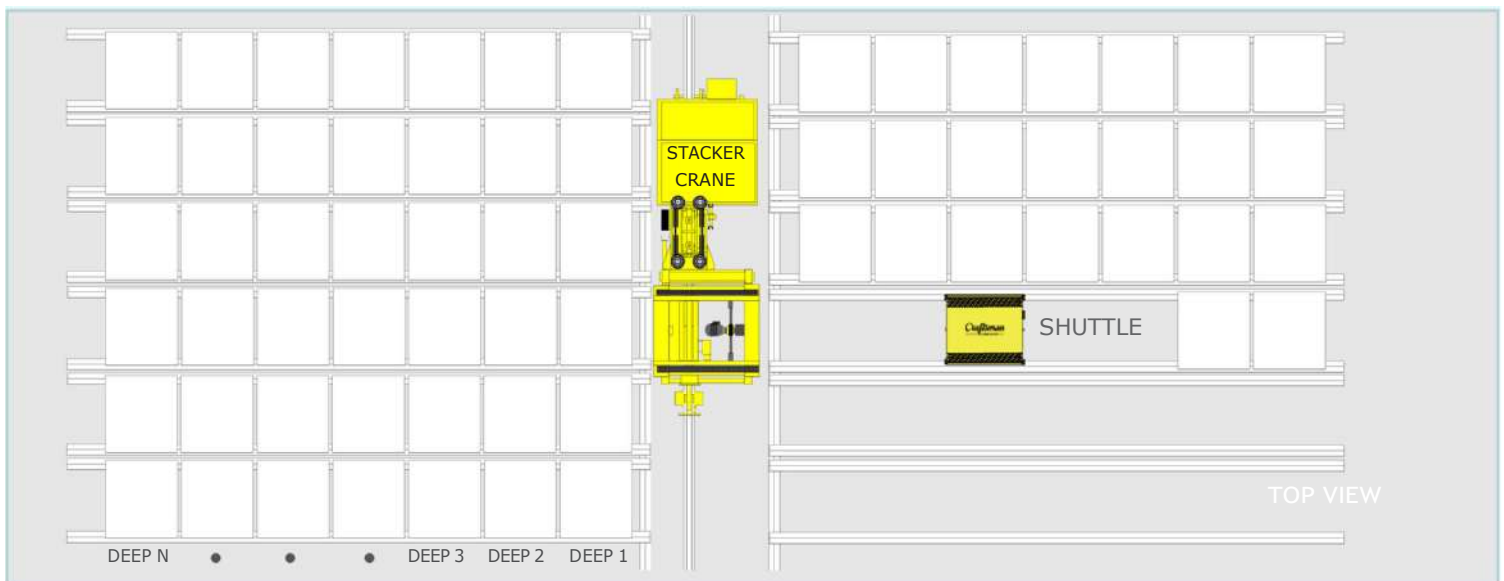
PALLET

Shuttle allows you to expand the performance range of traditional compact warehouse system - saving space by eliminating aisles. Achieve improvement potential in terms of filling level, throughput, and diversity of items, space utilization and load protection.



1. Unit ID Number
2. Power Indicator
3. Ethernet Communication
4. Pallet detection sensor
5. Hoisting Pads
6. Guide wheel
7. Emergency Button
8. Wifi Module
9. Forward Limit sensor
10. Shuttle wheel

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Shuttle allows you to increase the storage density of warehouse system



Compact warehouse system



Potential in terms of filling level, throughput, and diversity of items, space utilization and load protection



# MULTI DEEP SHUTTLE ASRS

Multi deep Pallet Shuttle ASRS is a revolutionary multi-deep Automated storage system for Pallets, comprising of multiple types of equipment working in tandem:

- Ultra-capacitor powered pallet shuttle
- Shuttle-carrier
- Pallet lifter
- Buffer conveyors

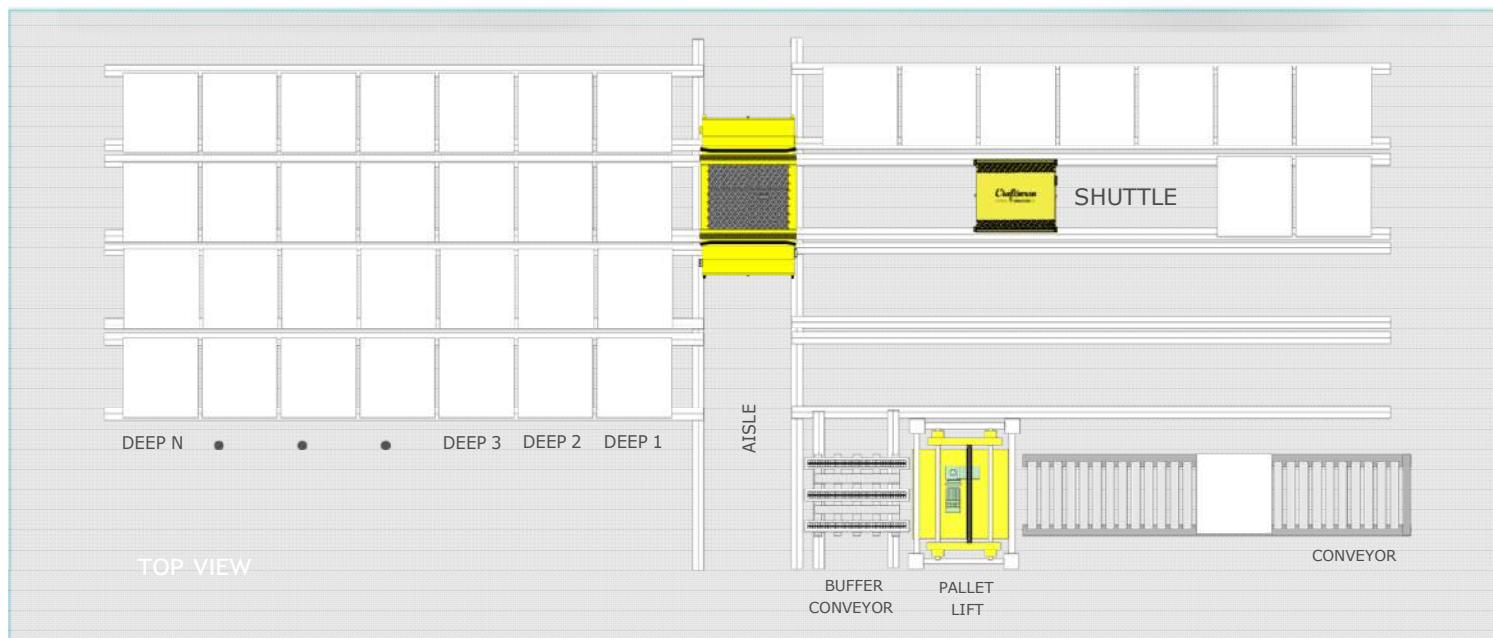
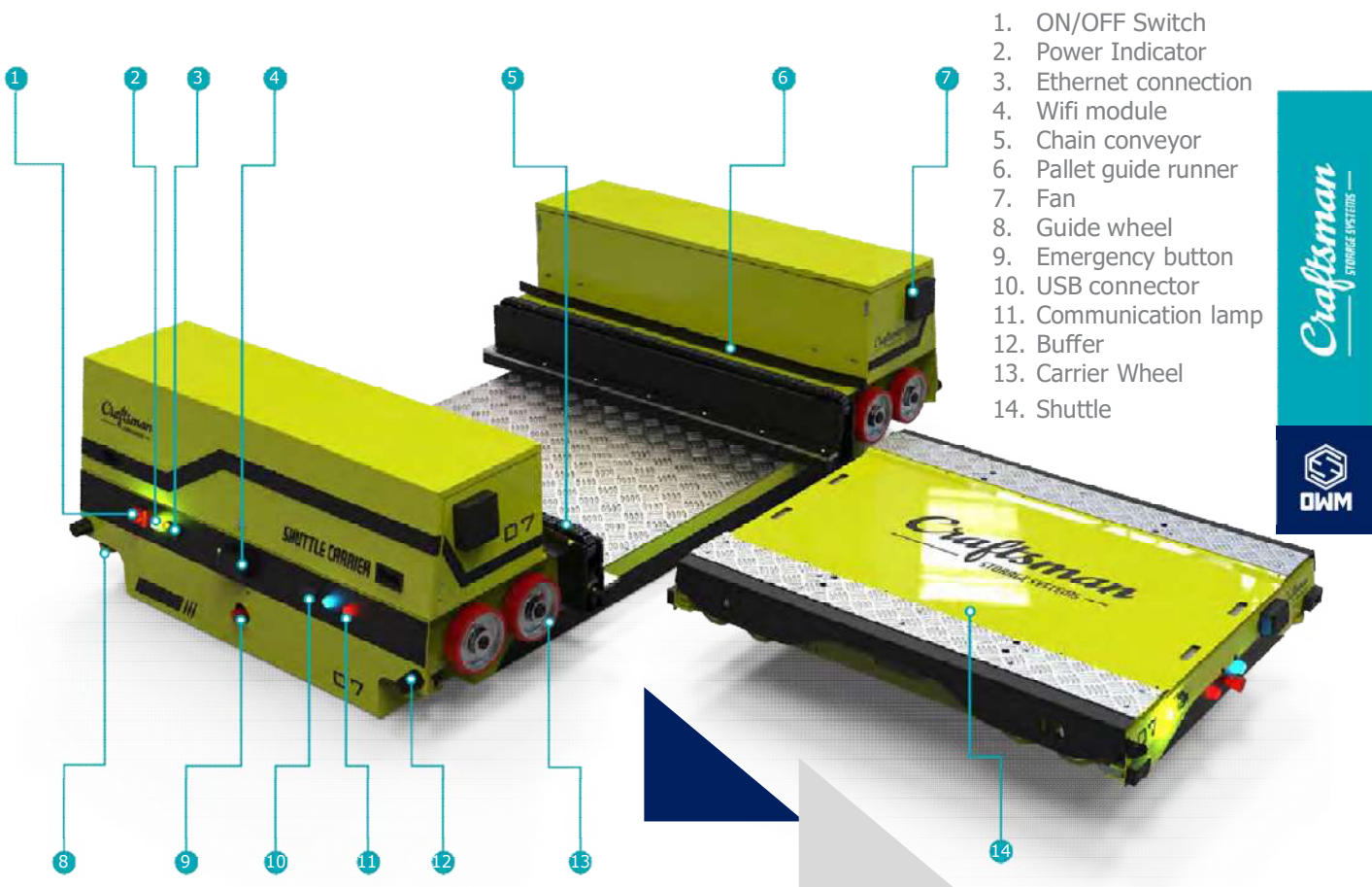
Each Shuttle & Shuttle Carrier operates on a single level, and are able to access pallets stored in a level by moving in orthogonal directions to each other.



PALLET

The pallet shuttle ASRS and Carrier is able to communicate with each other and also with the Shuttle Fleet Management Software (SFMS), which relays instructions as to which pallet to store and retrieve from which location. The shuttle and shuttle carrier are fitted with state-of-art distance, positioning and proximity sensors, and is highly accurate and able to place pallets within 5 mm accuracy.





100% automated storage operations

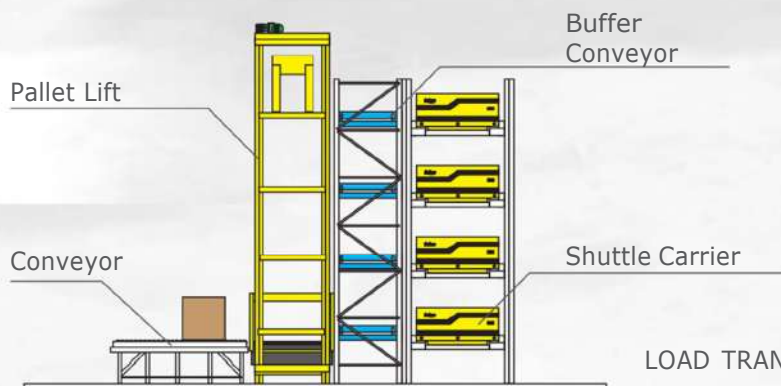


Safe and efficient pallet handling

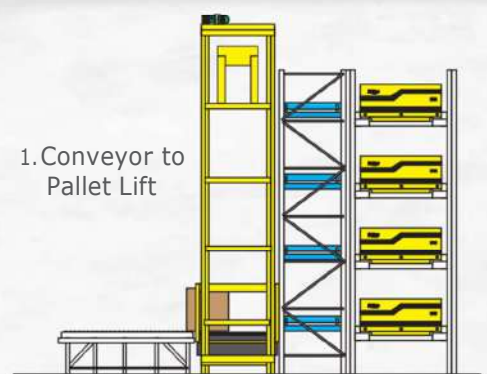


Modular design for scalability

# ASRS MADE EASY



LOAD TRANSFER



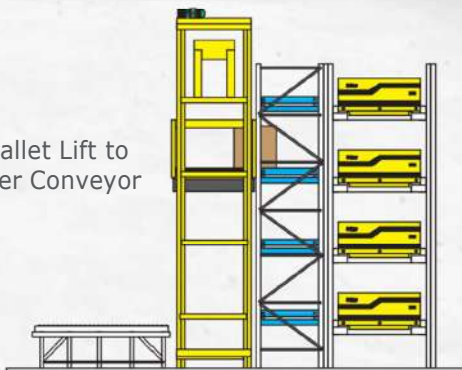




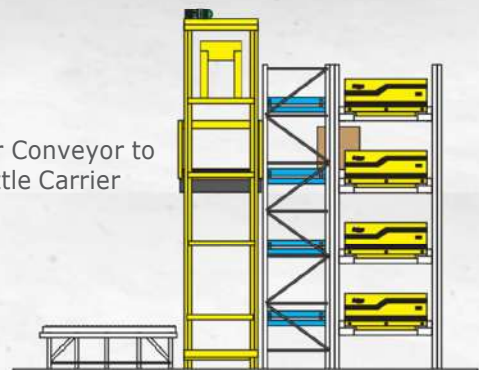
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2. Pallet Lift to  
Buffer Conveyor



3. Buffer Conveyor to  
Shuttle Carrier

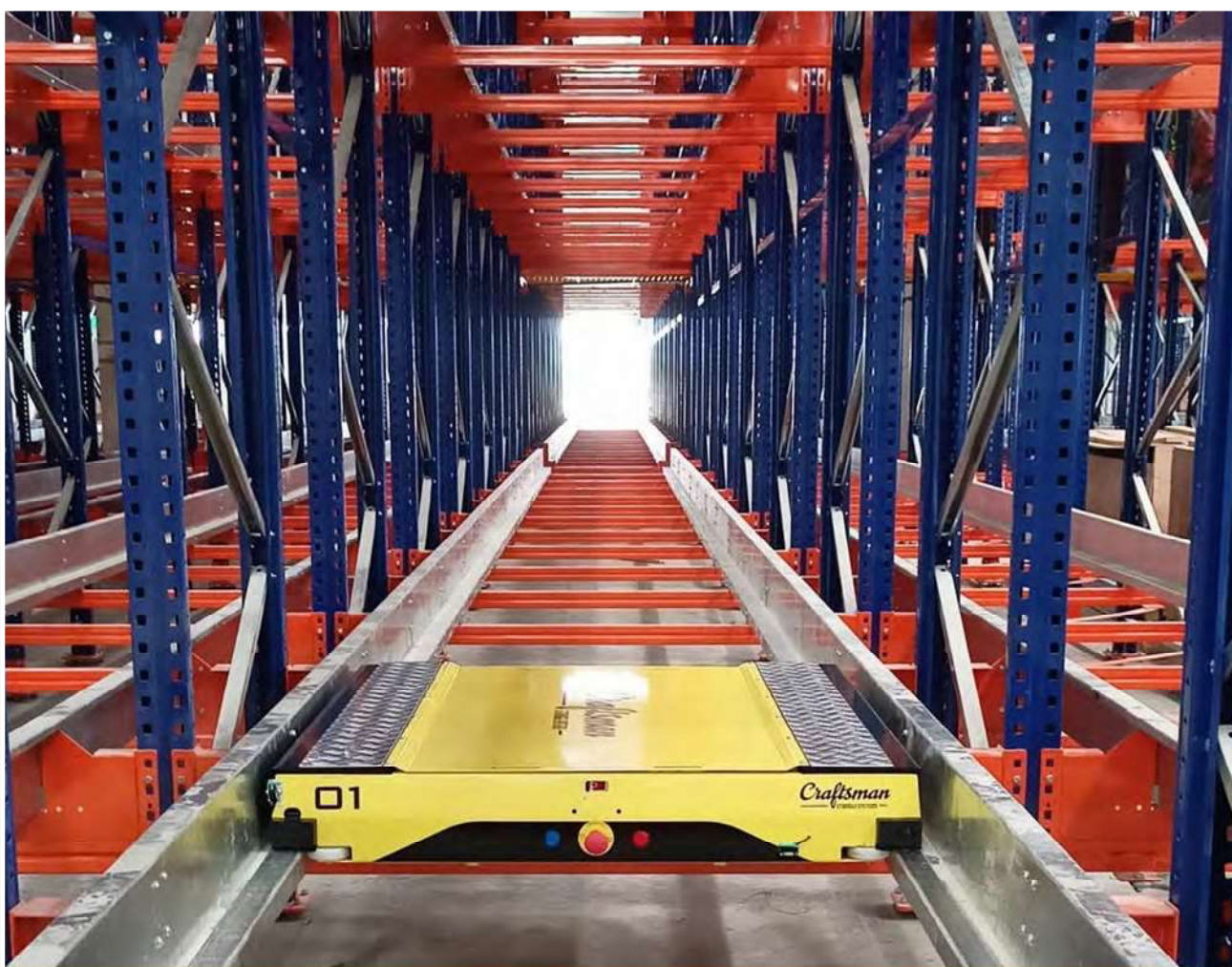




# SHUTTLE RACKING

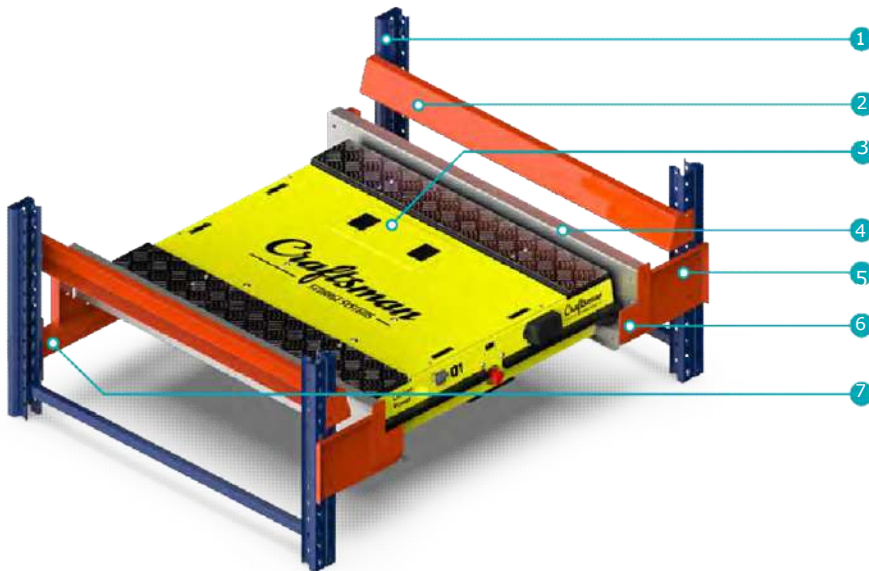
Radio shuttle is a semi-automatic storage solution for handling goods inside rack bays, similar to Drive-In systems. The radio shuttle eliminates the need for forklift entry within the racking system thereby achieving deeper racking systems, hence offers fast, cost effective & time saving solution.

These systems work on the LIFO ( Last In, First Out ) principle where the forklift operator places the load on support rails at the loading area, which prompts the shuttle to store the pallet at the next available free space.



Craftsman's Shuttle Racking system uses powered shuttles to automatically carry loads into the rack, making it a high-density compact storage solution, it can work in both FIFO (First In, First Out) and LIFO (Last In, First Out) modes.

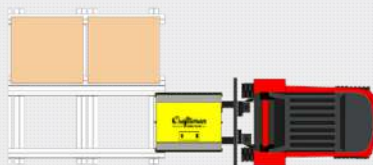




1. Upright
2. Pallet centralizer
3. Battery
4. Rail
5. External rail support
6. Rail end stopper
7. Beam
8. Radio shuttle
9. Remote control

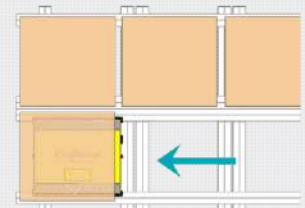


#### STEP 1



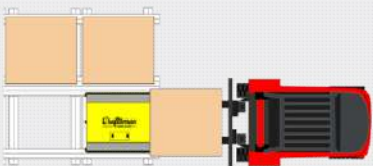
A forklift places a Pallet Shuttle on the level where goods are going to be stored.

#### STEP 3



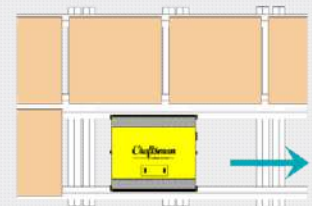
The shuttle raises one pallet slightly and then roll horizontally until reaching the first open location where it then sets the pallet down.

#### STEP 2



The forklift loads the pallets one by one at the level's entrance, supporting them on the loading sections.

#### STEP 4



The shuttle returns to the lane entrance to repeat the procedure until the lane is full. Once the last location is filled, the shuttle is extracted, ready to work on another level.

TOP VIEW



High capacity Lithium ion battery operating up to eight hours on a single charge



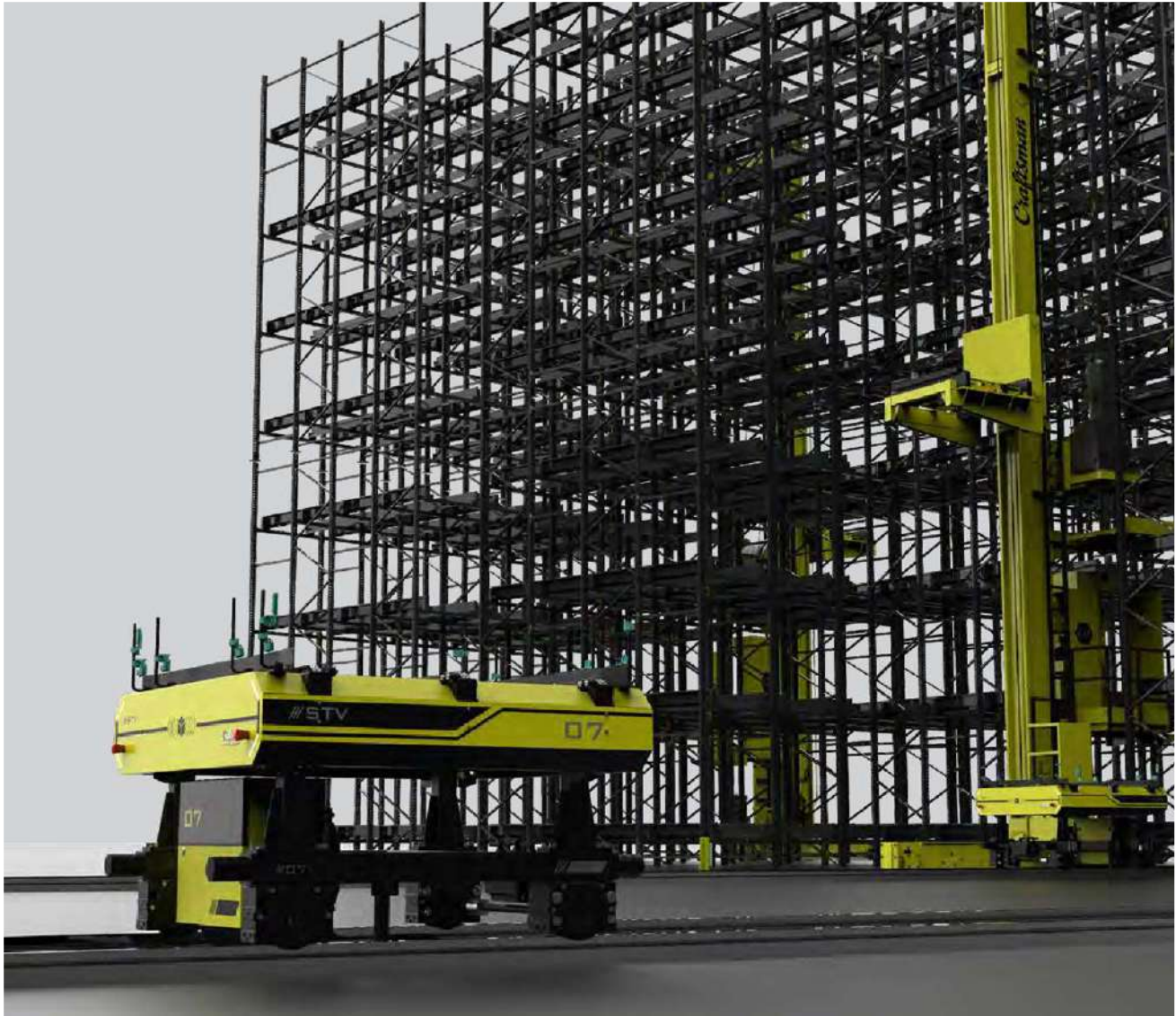
Reduced handling time and increased storage capacity in depth as lift truck does not need to drive into the racking structure



Safe Collision-free storage

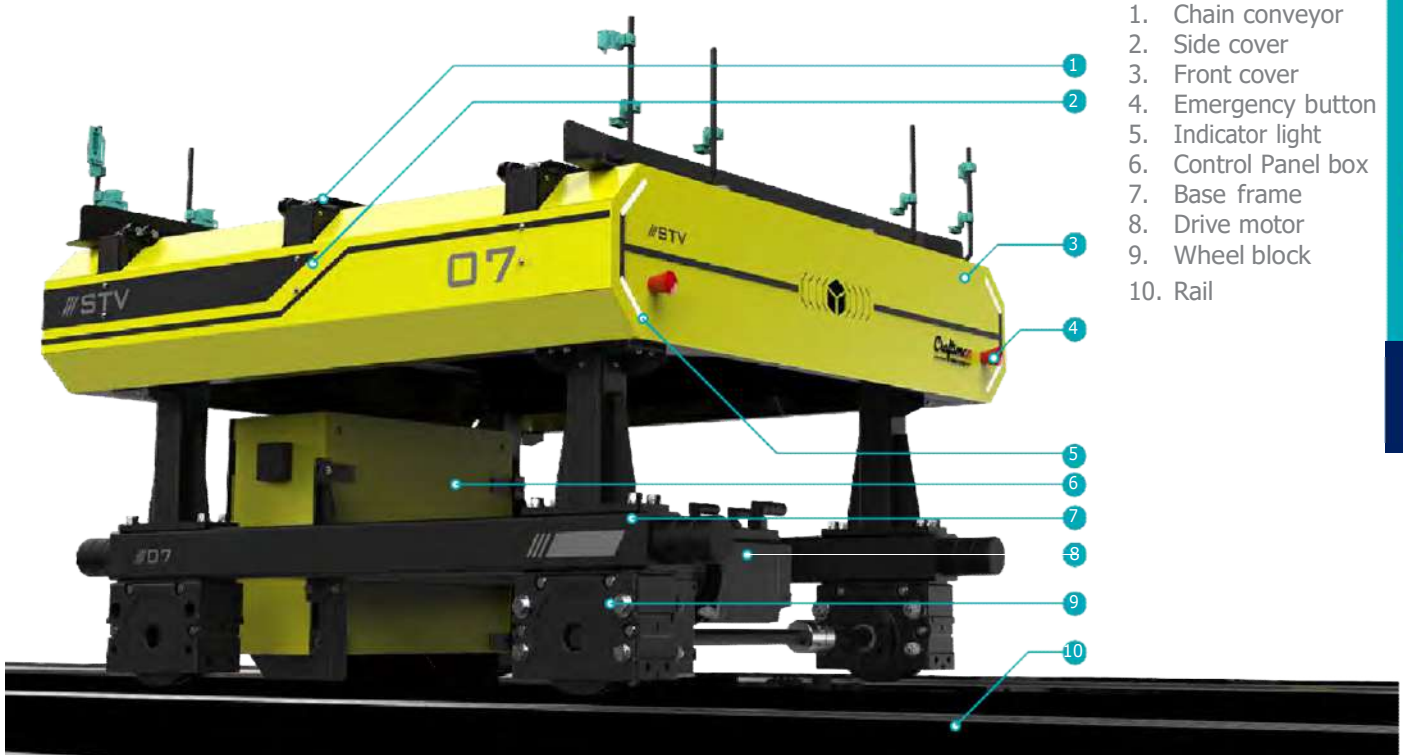
## SORTING AND TRANSFER VEHICLE

The STV system is based on intelligent, high-speed and rail guided vehicles customized for specific load handling applications. This technology is an efficient, cost-effective and fast option for complex sorting applications or connecting very distant points. It is also an interesting alternative to long conveyor lines and reducing queuing.

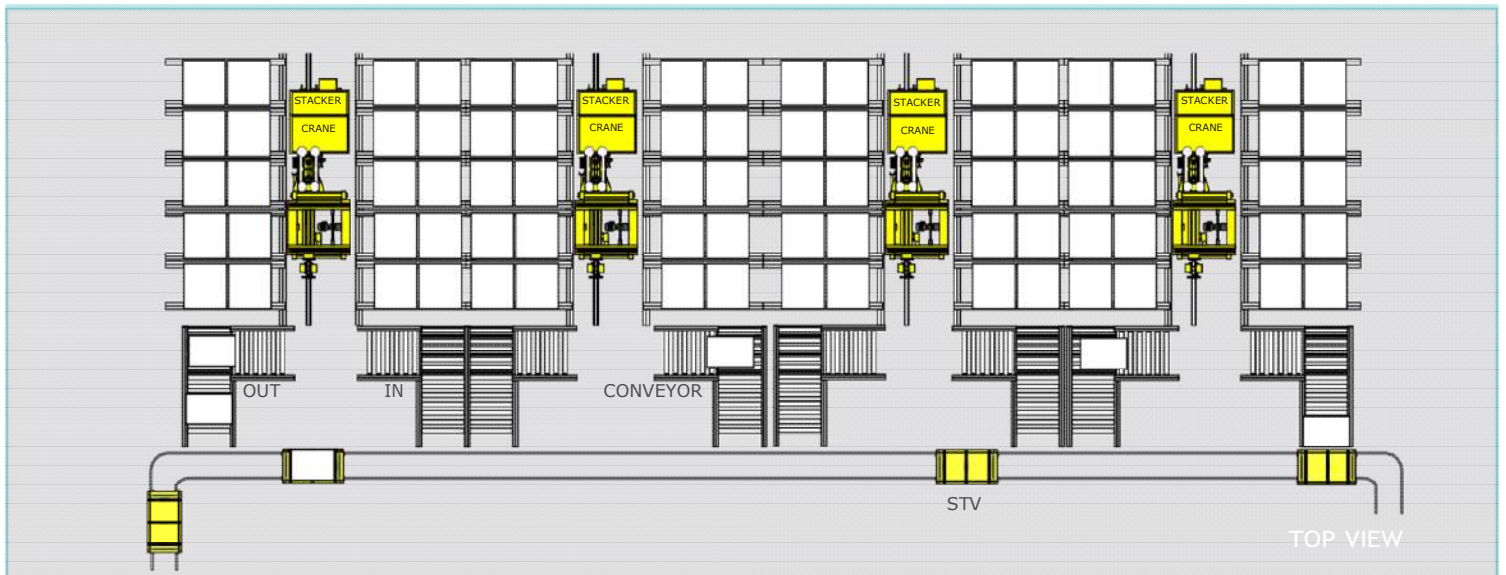


Rail guided transfer systems, that travel along the floor of a facility without an on-board operator. Their movements are directed by a combination of software and sensor-based guidance systems which is controlled by our WMS.





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Flexibility in order execution and destination planning



High speed



Discrete Pallet transfer

# PALLET CONVEYORS

Warehouse operations require a steady flow of materials for production, storage and dispatch purposes. Every material has diverse features and require conveyor systems that service handling and distribution within the facility.

We at Craftsman design flexible and cost-effective pallet conveyor systems suitable for assembly lines or storage facilities, using automatic or manually controlled workstations thereby increasing productivity and reducing costs.



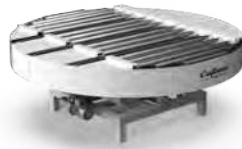
PALLET

Conveyor systems are material handling equipment used for movement of materials within an area. These systems are integrated with Storage systems for efficient and smooth material movement. Empowered by our ultra-modern designing and fabrication facilities, we at Craftsman Automation design and manufacture conveyor systems in-house hence providing customers with one stop solution.





ROLLER CONVEYOR



TURN TABLE



CHAIN CONVEYOR

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CHAIN TRANSFER  
CONVEYOR



PALLET LIFT



PALLET STACKER/  
DESTACKER



Allow materials, both big and small, to be moved from one location to another



Careful control of the speed at which materials are moved



Automatically load and unload materials



CHAIN CONVEYOR  
FOR FRONT LOADING



CHAIN TRANSFER  
CONVEYOR



ROLLER CONVEYOR  
FOR FRONT LOADING



ROLLER TRANSFER  
CONVEYOR

# MINI LOAD ASRS CRANE

Mini Load stacker cranes designed for smaller loads such as bins, totes, carton boxes etc. These systems provide both high storage capacity and high throughput through out the operation.

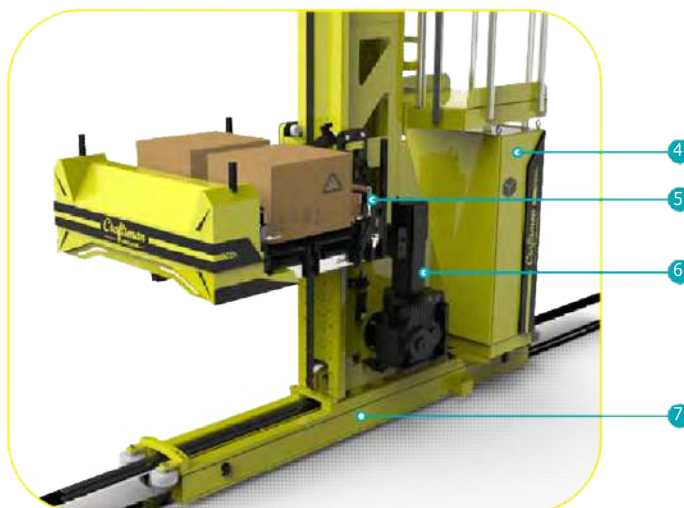
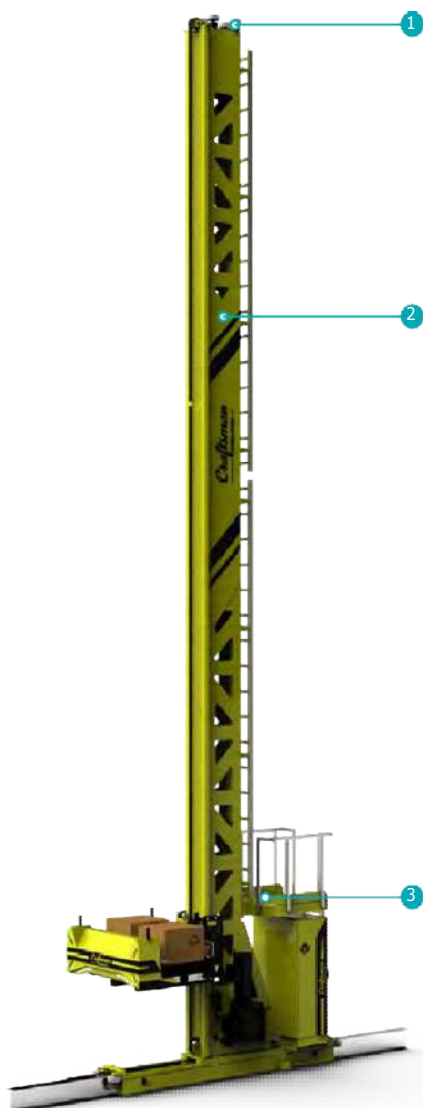
The Mini-Load Automated warehouse for bins is made up of a central aisle, along which a stacker crane travels, and two racks built on either side used to store bins. Its function isto store and stock the bins according to the system's requests, updating the information in real-time. Coupled with our mini-load sorting and conveying systems for picking and handling operations.



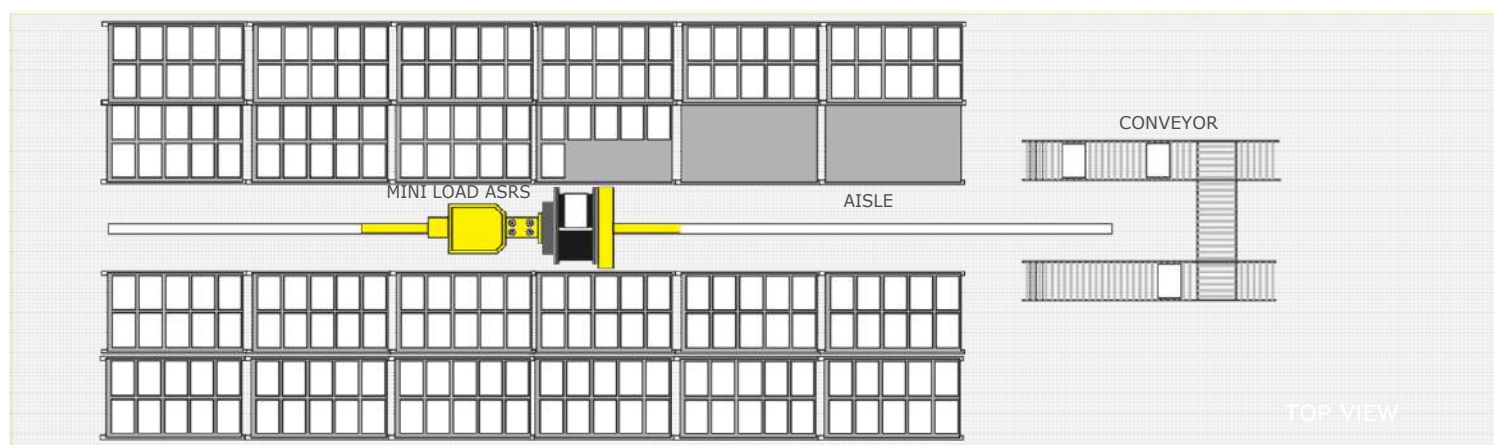
BIN

The design of the stacker cranes enables the forces transmitted to the supporting structure to be minimized thus preventing long-term damage to the racking or the structure of the warehouse. Craftsman storage has also equipped its machines with essential ergonomic and safety systems necessary to carry out work orders and maintenance as easily as possible.





1. Top Guide Assembly
2. Mast
3. Maintenance Platform
4. Electrical Cabinet
5. Lifting Cradle With Fork
6. Travel Drive
7. Bottom guide base



Flexible bin sizes



Low energy cost



Regenerative drives

# MINI LOAD SORTING AND CONVEYING SYSTEMS

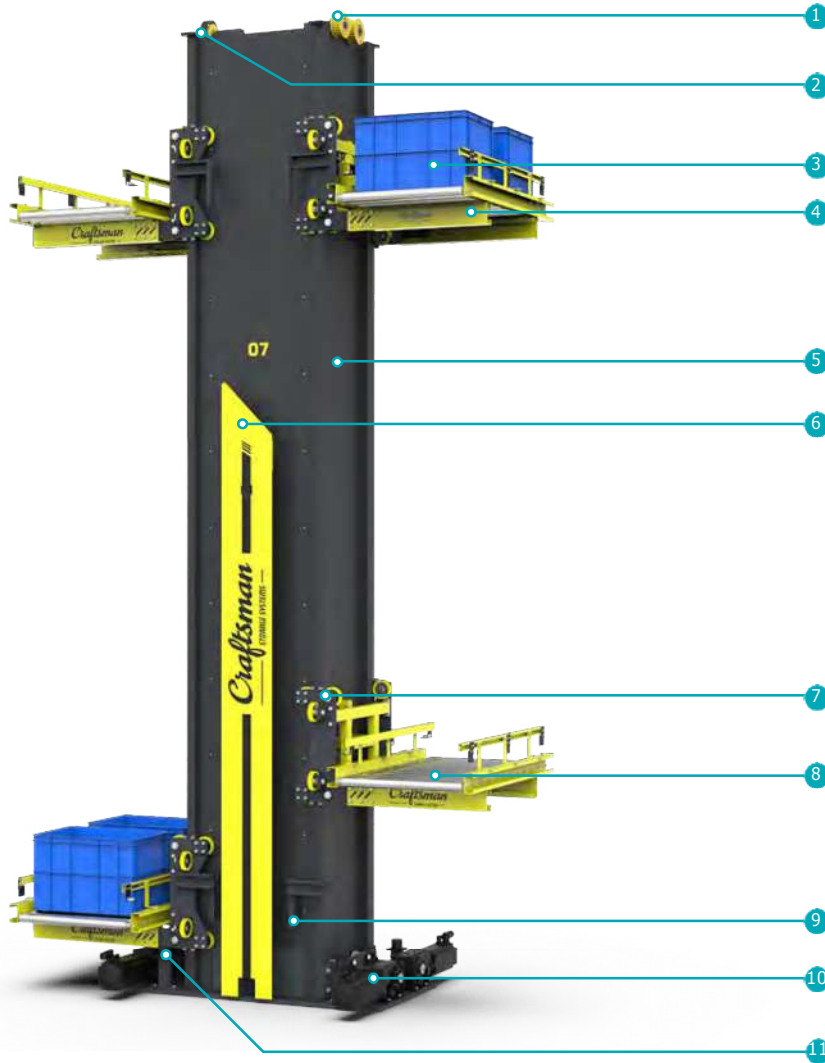
From warehouse automation to production facilities, Craftsman Mini-load conveyor systems are used for a broad range of applications. It is a modular transporting system for bins, totes, small carton boxes and products weighing up to 50 kgs. The use of a driving system and presence detection systems enabled by mechanical or optical sensors allow boxes to be moved under controlled conditions to the desired positions



BIN

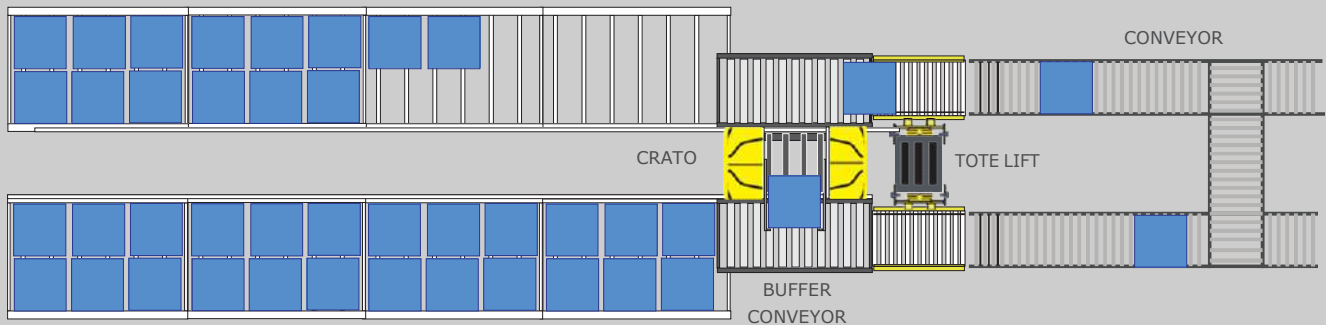
The functions of the system include conveying, sorting, buffering, merging, diverting, lifting and lowering. Our conveyor systems are scalable to the needs of its users and adjustable for future expansion. The conveyor systems are controlled through a PLC based intelligent warehouse control system (WCS). The WCS operates in-synchronization with the warehouse management system (WMS) to ensure seamless delivery in the required sequence. Multiple systems can be stacked together for even higher throughputs.





1. Toothed pulley
2. Belt
3. Bin
4. Carriage
5. Mast
6. Outer Cover
7. Wheel assembly
8. Conveyor roller
9. Guide
10. Lifting drive

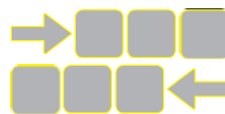
*Craftsman*  
STORAGE SYSTEMS



TOP VIEW



High throughput



Parallel order processing

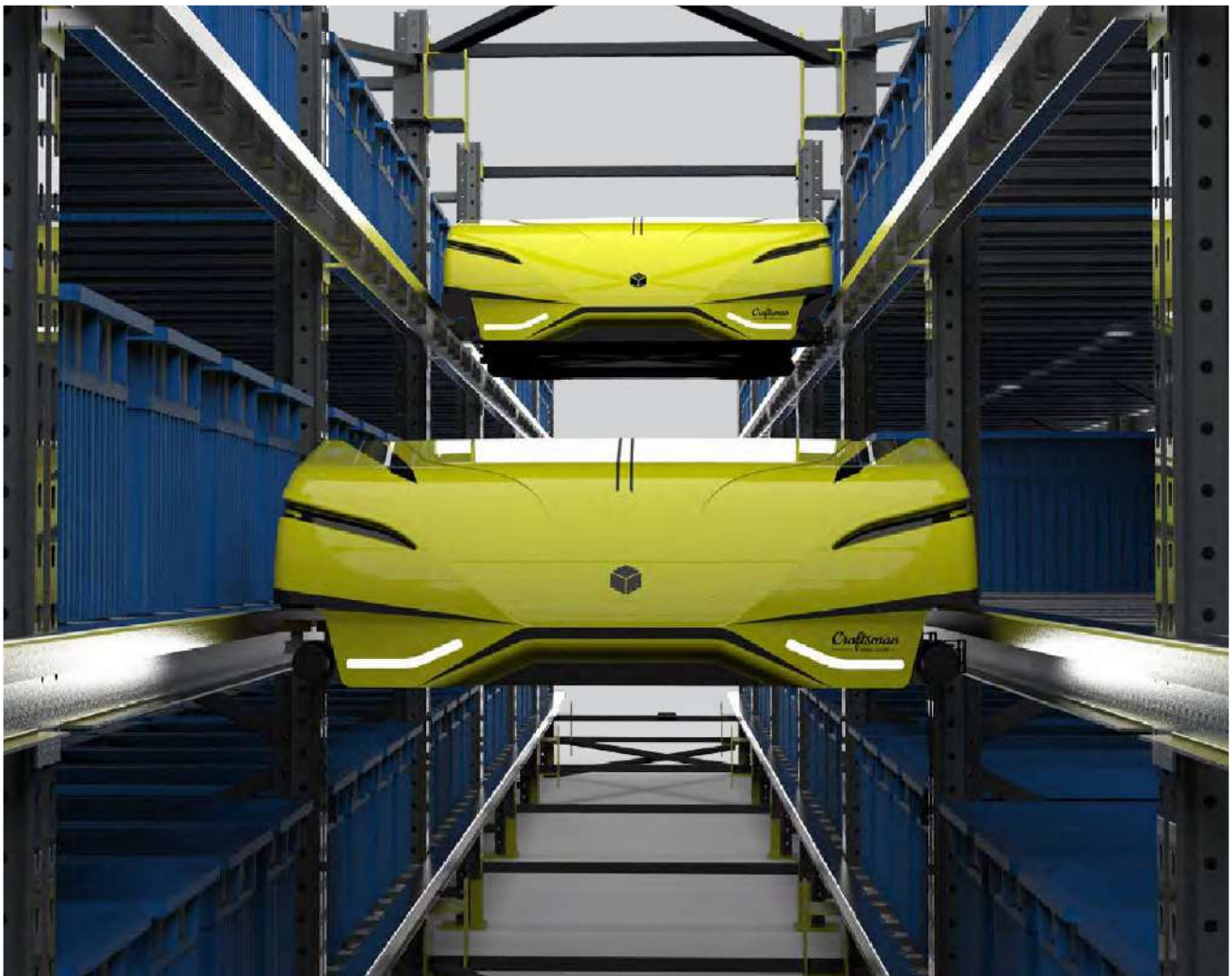


Low Energy Consumption

## MINI LOAD SHUTTLE

Mini-Load AS/RS systems are automated storage and retrieval systems for bins, totes and cartons. Mini load systems are designed with faster performance and operational efficiency, resulting in higher productivity. Craftsman's Crato, A single level shuttle system provides optimum space utilization with high throughput capabilities.

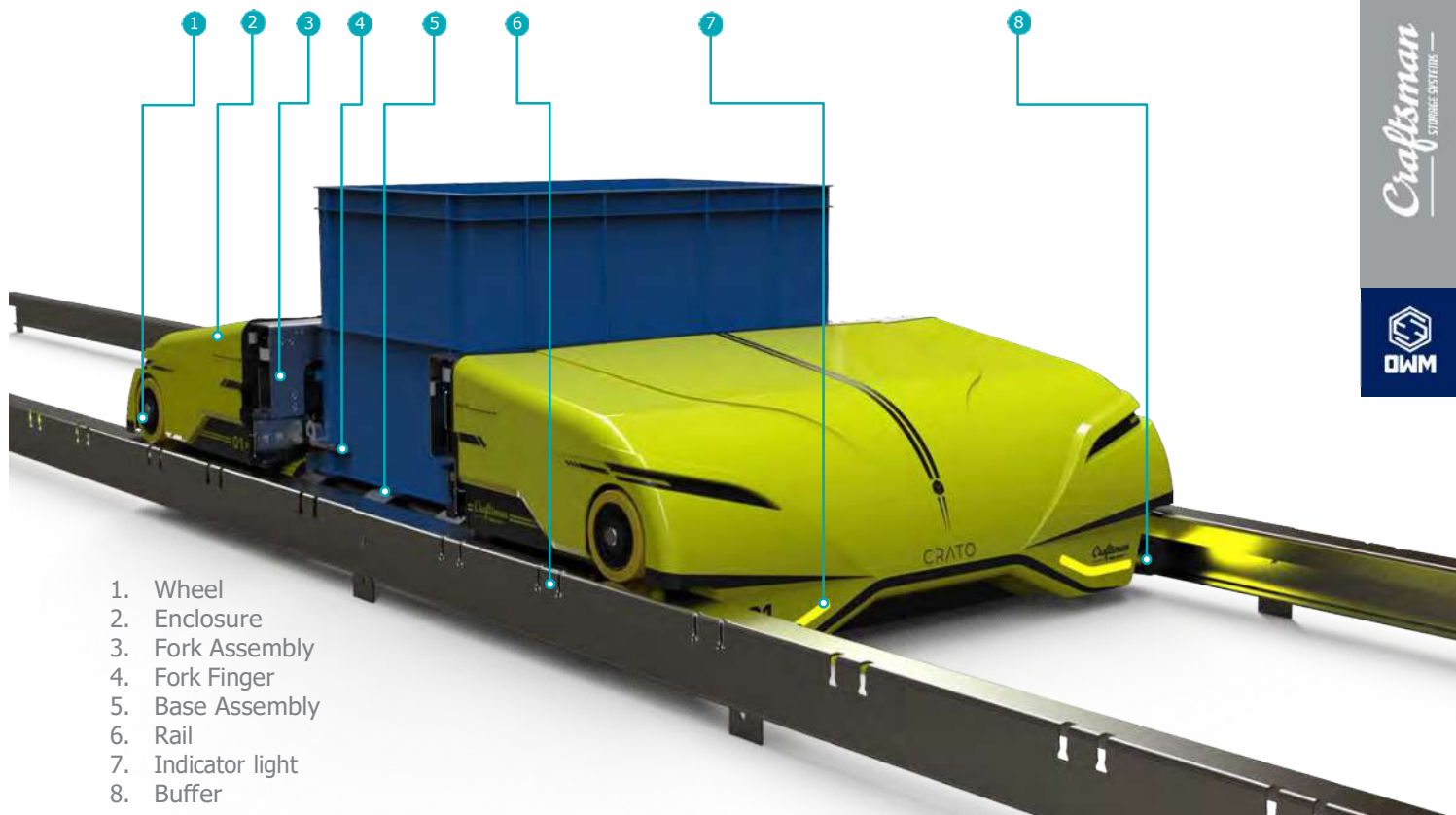
Crato is fitted with telescopic forks for storage and retrieval designed to handle Totes of sizes from 300mmx400mm up to 600mm x 400 mm. Weights up to 50 kg per tote can be handled efficiently and reliably by Crato



BIN

- Combining Crato shuttles with Craftsman's innovative Mini-load lift, throughputs of up to 400 totes per hour per lift can be achieved
- Multiple systems can be stacked together for even higher throughputs
- Double deep storage for maximum storage density

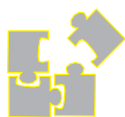
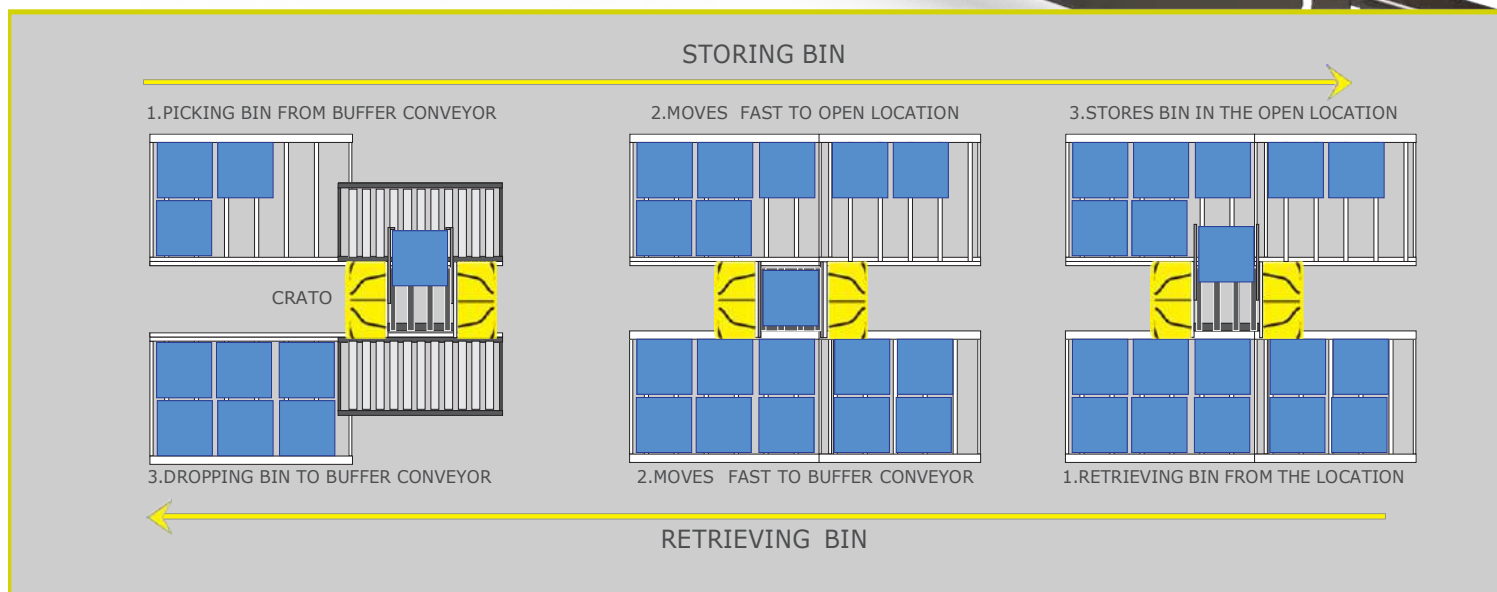




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1. Wheel
2. Enclosure
3. Fork Assembly
4. Fork Finger
5. Base Assembly
6. Rail
7. Indicator light
8. Buffer



Modular design for scalability



Controlled Inventory



Cold storage option

# V STORE

Our vertical Automated storage and retrieval systems with a small footprint, high density, VStore makes maximum use of floor and vertical space and offers cost-effective, efficient, quick, and ergonomic solutions to meet your storage and retrieval needs.

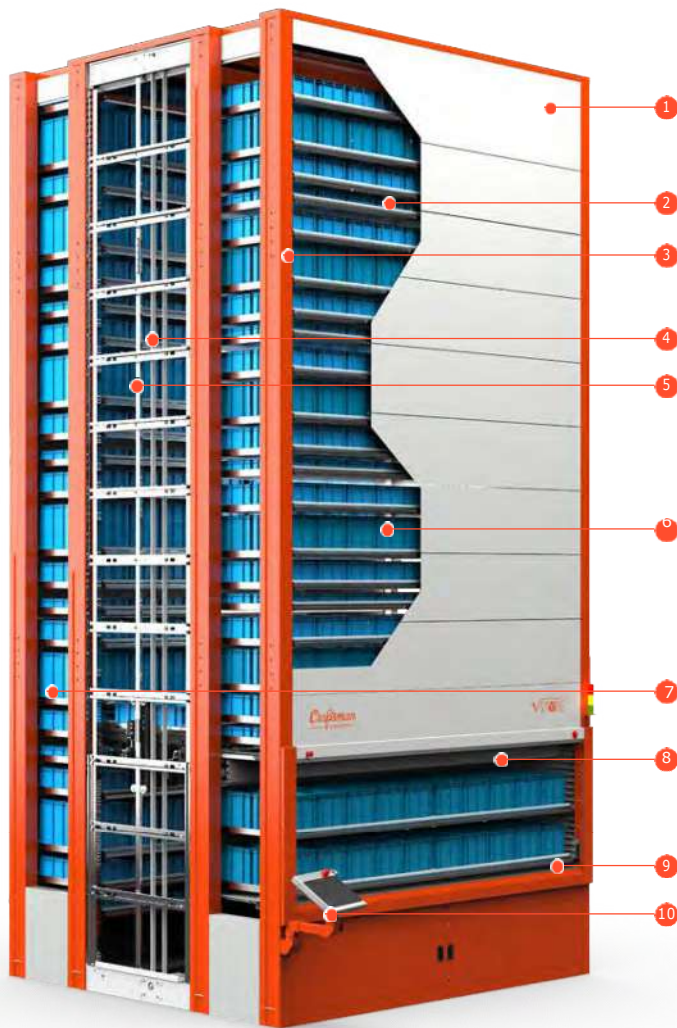
V store provides various pre or post install customizing options. It can be resized, moved and altered to meet changing business, facility and application requirements. The modular construction allows future height increase for expandable storage.



V STORE

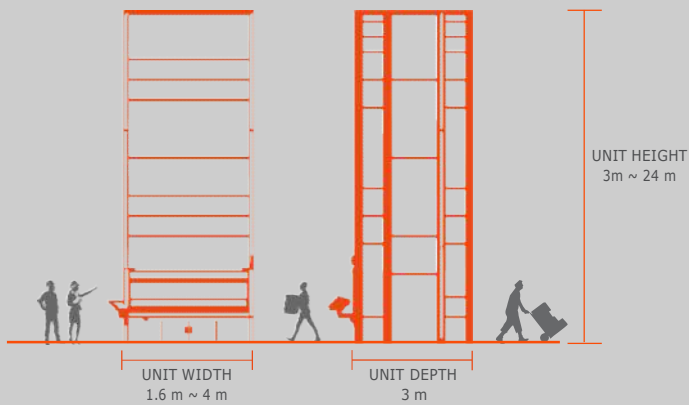
The possibilities of VStore are unlimited. This type of Automated storage and retrieval system can be deployed in various industries such as automotive, electronics, manufacturing, health-care, retail, logistics and warehousing. Wherever items need to be stored with effective usage of space and retrieved quickly, VStore provides the optimum solution.





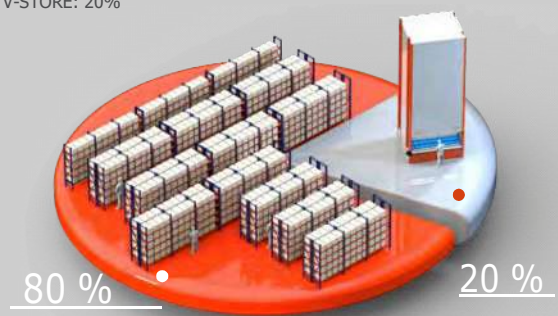
1. Steel cladding
2. Height adaptive technology
3. Column
4. Tooth belt drive
5. Vertical movement guide
6. Front storage area
7. Rear storage area
8. Automatic shutter doors
9. Tray retrieval technology
10. Operating console

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— STORAGE SYSTEMS —



#### FOOTPRINT

NORMAL RACKS: 80%  
V-STORE: 20%



#### S.P.A.C.E



SPACE



PRODUCTIVITY



ACCURACY



CONTROL



ERGONOMICS

## OPTIONAL FEATURES



LASER POINTER



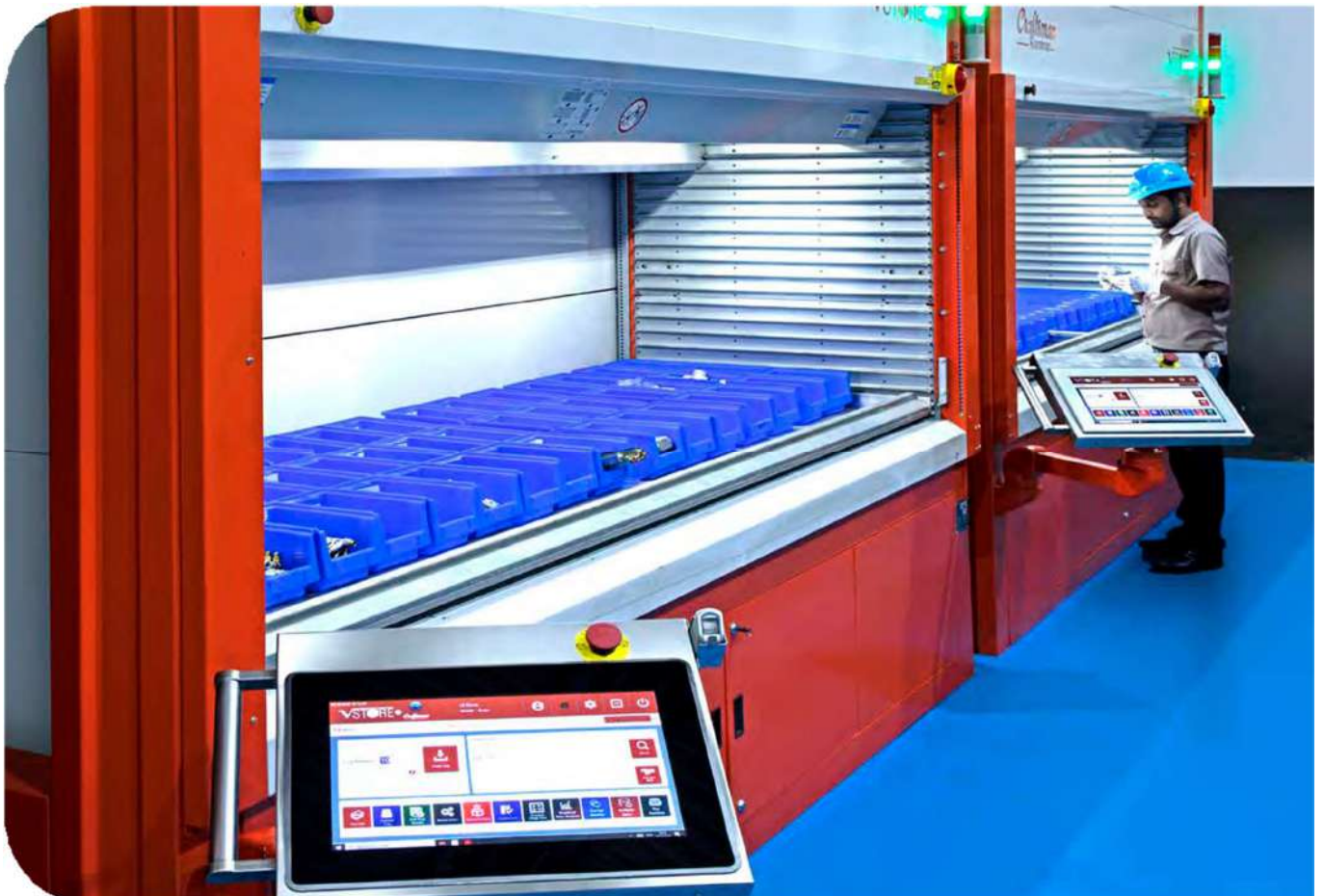
BIOMETRIC SECURITY



ERP INTEGRATION



BAR-CODE SCANNER



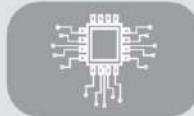




## INDUSTRY SEGMENTS



TEXTILE



ELECTRONICS



AUTOMOTIVE



MANUFACTURING



LOGISTICS



WAREHOUSING



PHARMA



TYRE



JEWELLERY

## FOOTPRINT COMPARISON

V STORE **36 m<sup>2</sup>**

**80 % space saved !**





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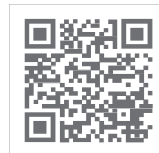
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**Craftsman**  
AUTOMATION



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