东莞市益诚自动化设备有限公司

Dongguan Yicheng Automation Equipment Co., LTD

使　命：为客户创造价值
愿　景：成为一流的智能制造解决方案供应商
价值观：诚实 担当 感恩 分享

Mission: Create value for customers
Vision: Become the first-class supplier of smart manufacturing solutions
Values: honesty, gratitude, sharing

http://www.ycnicety.com

Automatic Warehouse

Ver.1   2022.03.30

Problems faced by customers:

· Are you troubled by the inefficiencies and errors that come with turnover?
· Do you have trouble keeping and managing your products?

⬇ ★Provide the most suitable automated warehouse solution

★Saving labor cost: 30%~50
★Space utilization: Improve 30%

· Reduce reliance on operators and reduce reluctance, deviation, waste and efficient use of site space according to the introduction of automated warehouse and AGV.

| Project	Material Storage	Transfer	In warehouse	Stock removal	Move	Production Processing	Move	In warehouse	Out of warehouse	Move
WMS	○: Save your time		○: Save your time	○: Save your time				○: Save your time		
AGV		○: Save your time Impersonal	○: Impersonal	○: Impersonal	○: Save your time Impersonal		○: Save your time Impersonal	○: Save your time	○: Save your time	○: Save your time Impersonal
Automated Warehouse			○: Impersonal ○: Save space	○: Impersonal				○: Impersonal	○: Impersonal	
Automatic		○: Unloading from pallets		○: Sorting		○: Automatic feeding	○: Unloading from pallets		○: Sorting	
Systematic	○: Save your time			○: Save your time		○: Save your time				

★Combining the advantages of our own automation equipment manufacturer, we create higher value by automating and systematizing the whole operation around the automatic warehouse and production processing site.
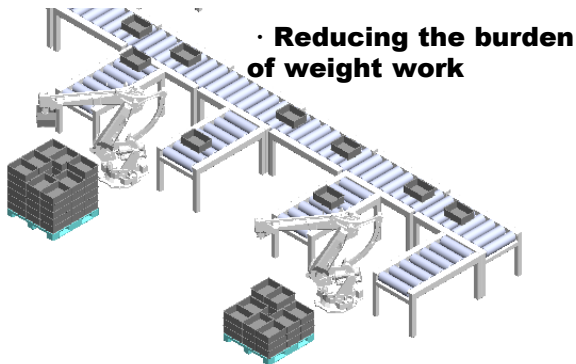
· Reducing the burden of weight work

· Reduce inventory and control costs

Reduce/avoid waste of space site

Product Requirements

Production site → Product Warehouse

Excess inventory

Excess purchasing
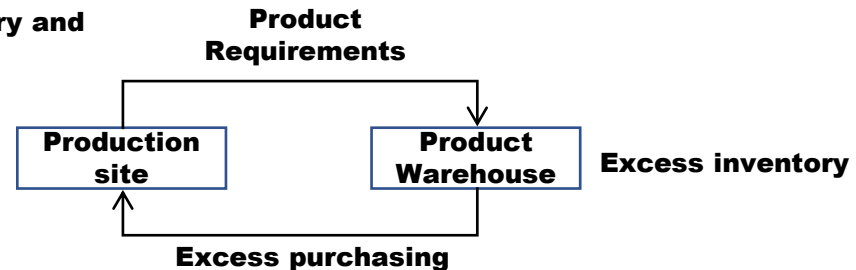
· We provide the most reasonable purchase plan according to the import of the site management system.
"What is needed, prepare only the amount needed when it is needed!"

What is automated warehouse?

The automatic warehouse is automated warehouse for a series of operations such as inbound, storage and outbound storage of goods。

Automated warehouse systems	Outline
Frame type automatic warehouse	The goods are loaded into standard frames and stored in a system of shelf storage. Suitable for irregular goods / semi-finished products .
Pallet type automatic warehouse	A system of storing goods on pallets for shelf storage For those who want to keep using the existing warehouse.
Mobile shelf type automatic warehouse	System of storing goods in mobile shelves Suitable for warehouses that require picking operations.
Automated Warehouse Management System （WMS）	A system for managing the above-mentioned automated warehouse commodity storage information in a single unit

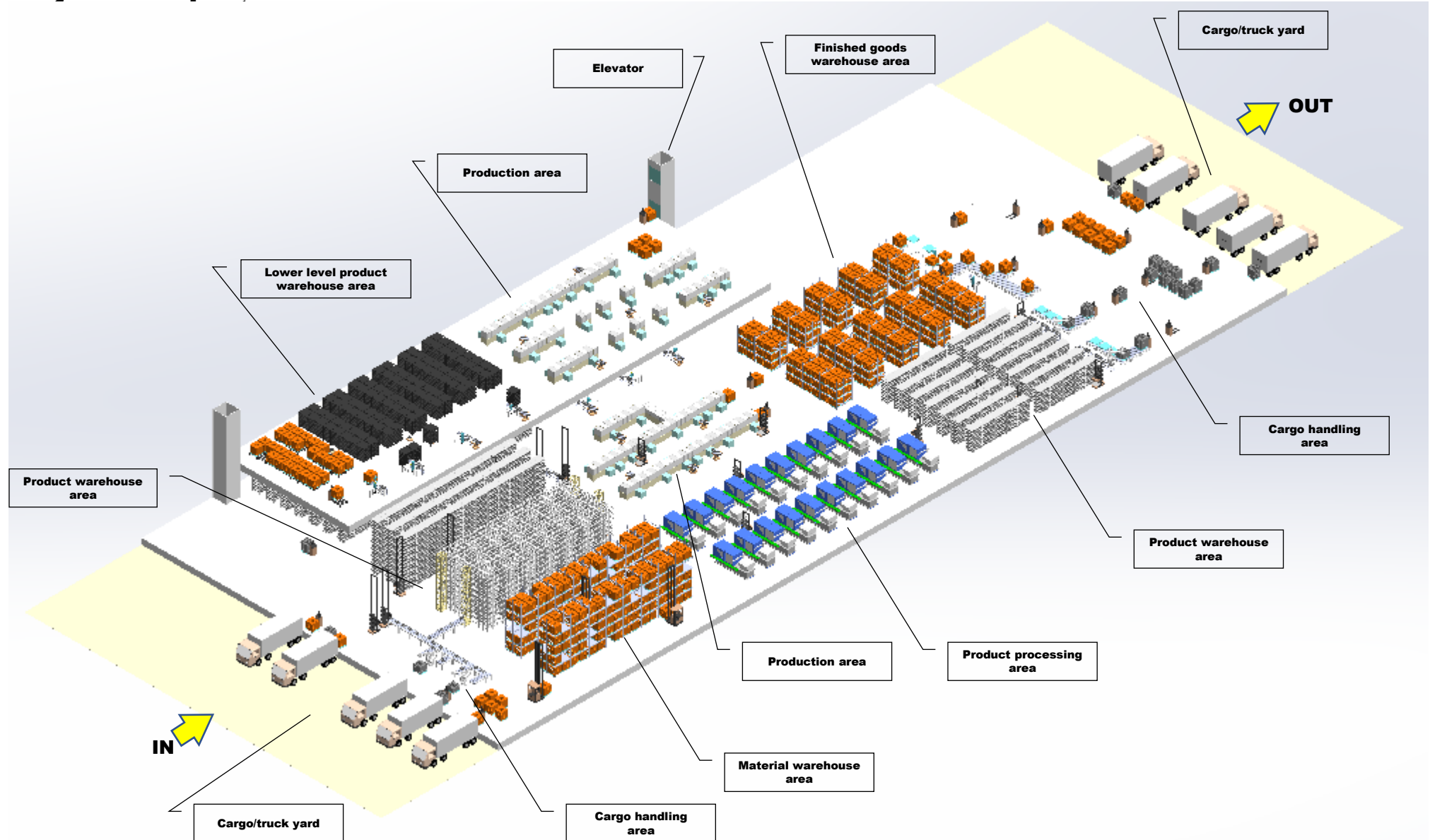| Automated moving robots	Outline
Submerged AGV	Lurking under the shelf, jacking up and lifting the shelf to move
Frame type AGV	Multiple frames can be carried。
Roller type AGV	Can receive goods by driving rollers
Unmanned Forklift Type (AGF)	Pallets can be moved and delivered.
4-way shuttle	Can travel in 4 directions in the front, back, left and right of the shelf
Automatic Warehouse Control System (WCS)	Motion control system for the above-mentioned automatic transfer robots, conveyor lines, lifts, and other transfer machines

Advantages of automated warehouses

By importing automated warehouses, we can improve work efficiency and save storage space, and save labor in the inbound and outbound operations and picking operations, and improve business quality.

Disadvantages of automated warehouses

· High introduction costs
· The possibility of stopping operation due to malfunction
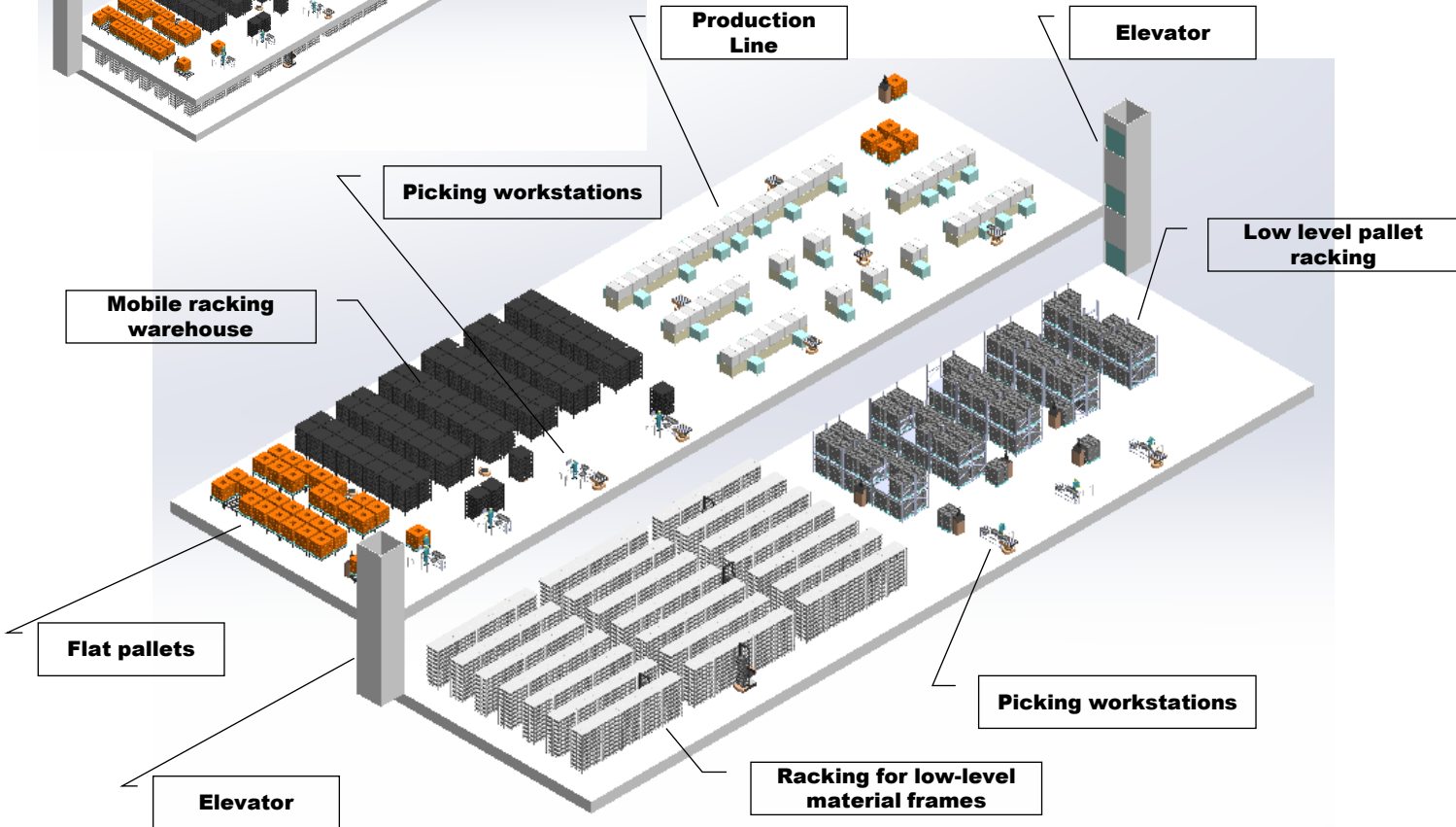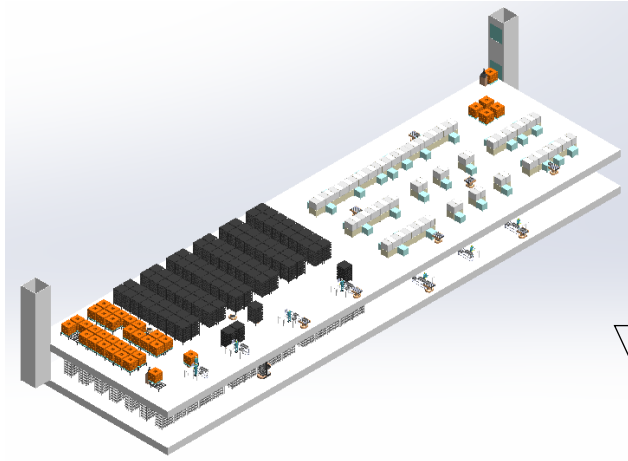· Automated warehouse has certain restrictions on storage methods

Automatic Warehouse

Cargo/truck yard

Elevator

Finished goods warehouse area

OUT

Production area

Lower level product warehouse area

Product warehouse area

Cargo handling area

Product warehouse area

Production area

Product processing area

Material warehouse area

Cargo handling area

IN

Cargo/truck yard

Automatic Warehouse Reference Chart

2F

1F

FL ~ Patio：3～4m

Production Line

Elevator

Picking workstations

Low level pallet racking

Mobile racking warehouse

Flat pallets

Elevator

Picking workstations

Racking for low-level material frames

Material/Product Custody
Pallet Type Automatic Warehouse & Unmanned Forklift Truck

Unmanned forklift (also manned)

High Level Pallet Racking

Unmanned forklift

· **High Floor Type**

· **Low Floor Type**
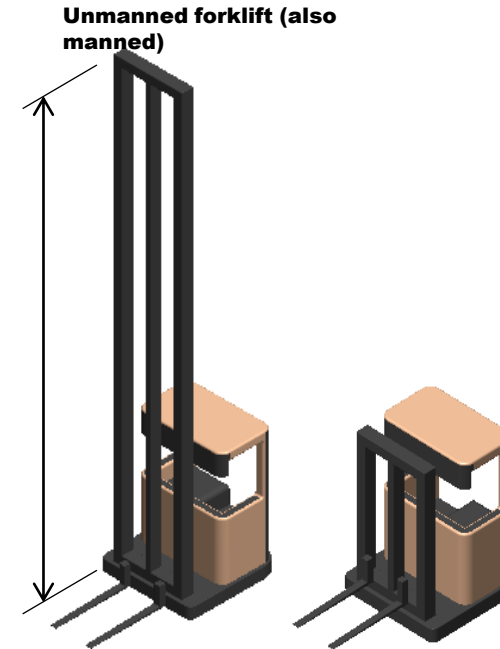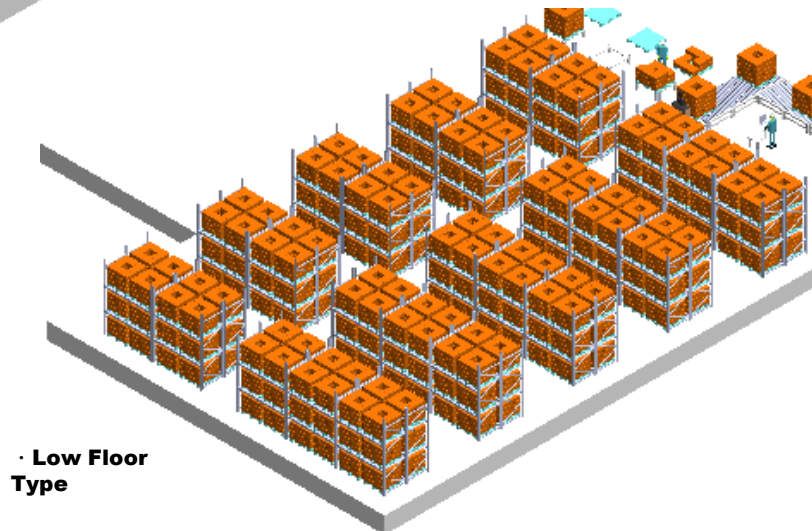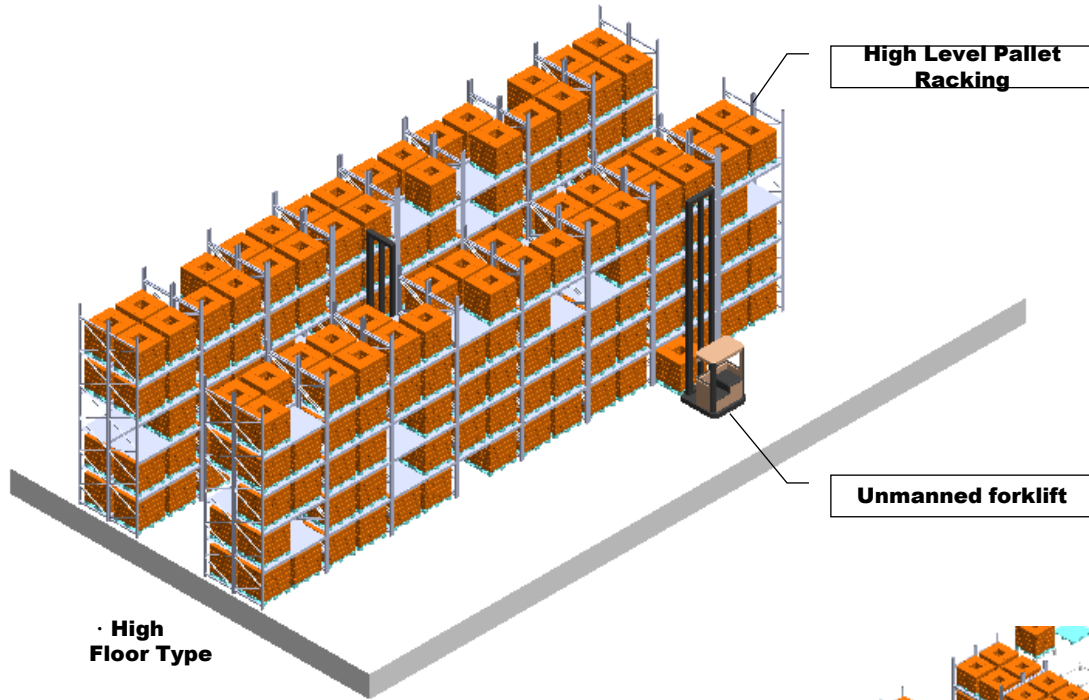
Lifting height: Up to about 8m
· Liftable weight: ~1,600kg

Reference

Project	Specification
W：width	1,590mm
D：Depth	2,600mm
H：Height	3,900mm
A：Lifting and lowering stroke	8,000mm
Load	1,600Kg
Movement speed	1.3m/s

Heavy duty racking for pallets

Load weight: Customized according to customer requirements

Material/Product Storage
②Shelves for Material Frames & AGV for Multi-layer Bins Handling

Shelves for frames

High Floor Type

Multi-level bin handling AGV

Low floor type

Multi-level bin handling AGV
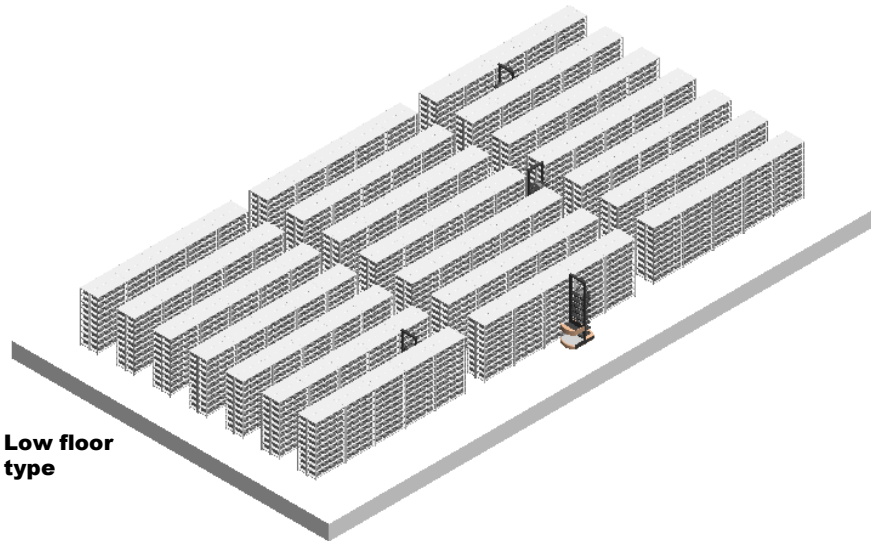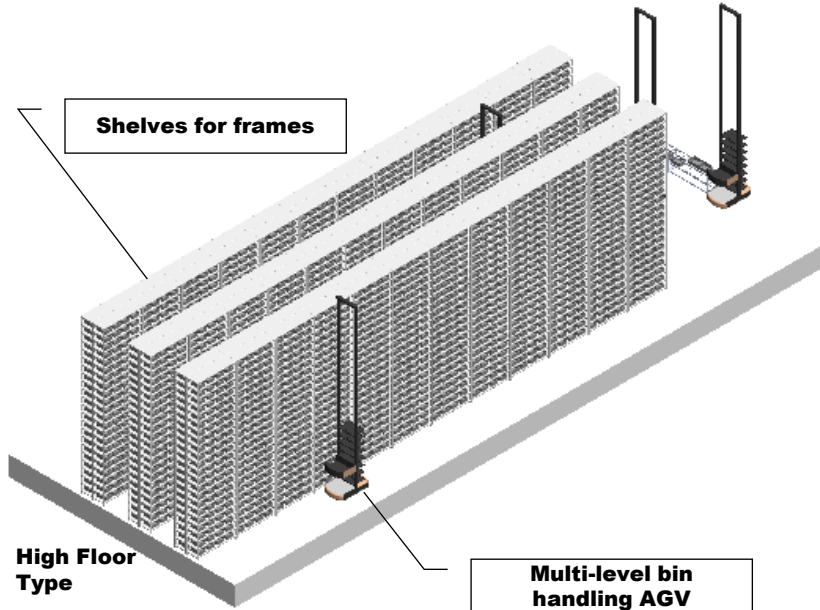
Reference

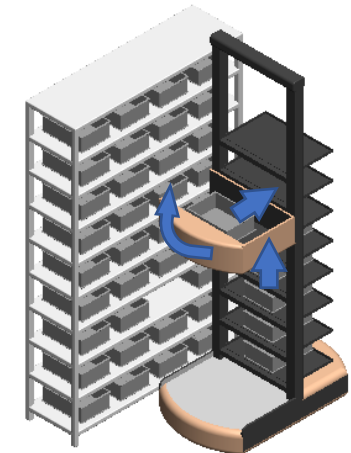| Project	Specification
W： width	1,500mm
D： Depth	800mm
H： Height	4,000mm
A： Lifting and lowering stroke	3,700mm
Load	40Kg/Carton
Movement speed	1.0m/s
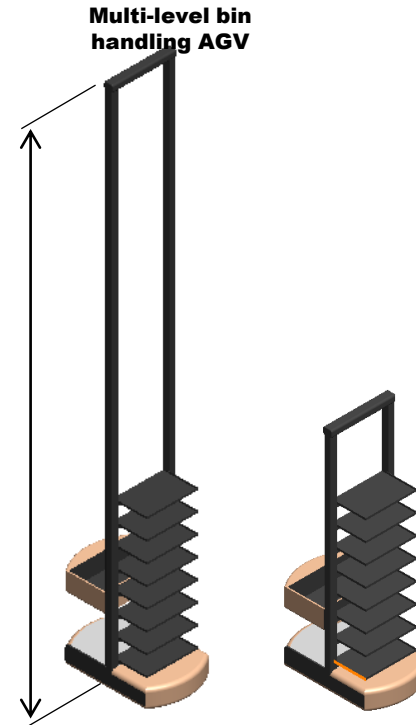
· Lift height: up to about 8m
· Number of layers: Max6 layers (change according to weight)
· Liftable weight: Max40Kg/box
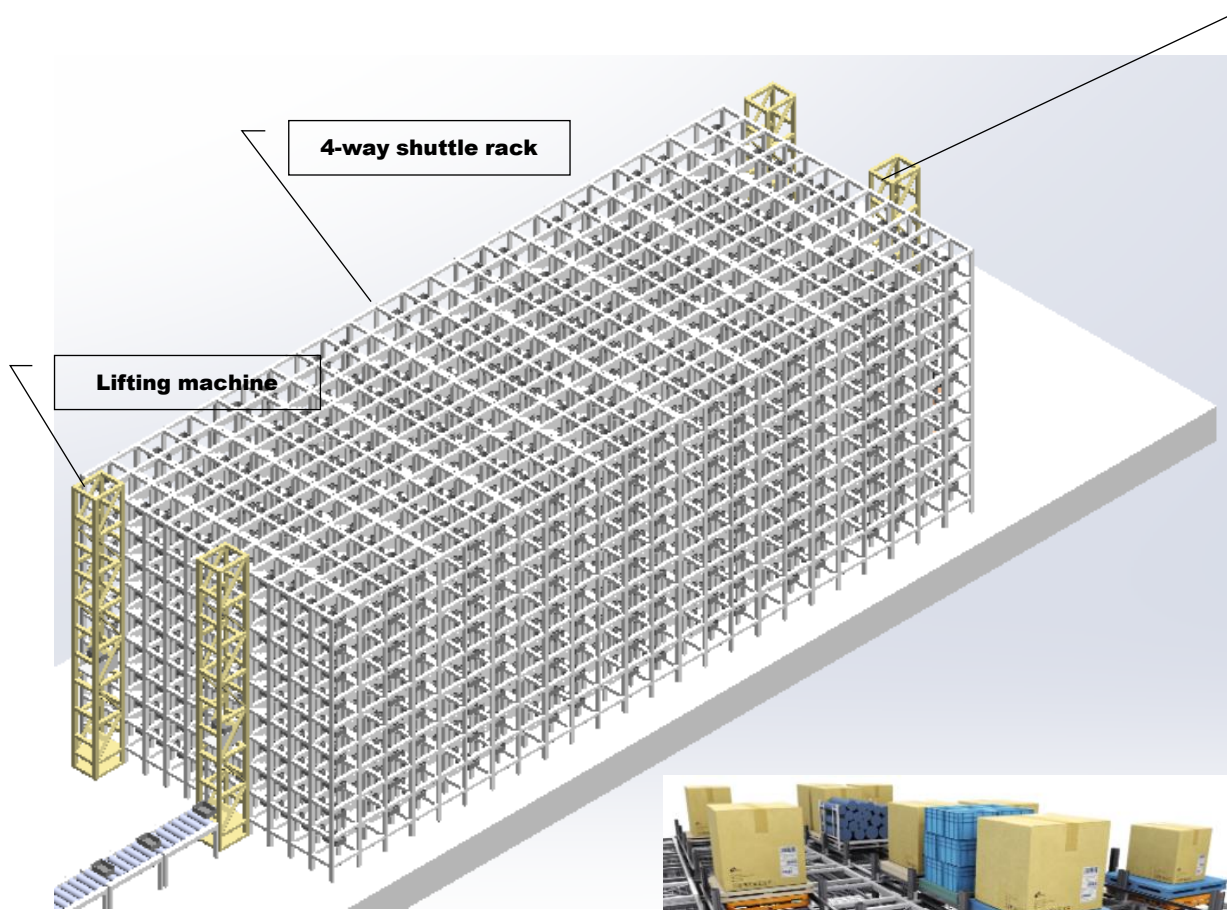
Shelves for frames
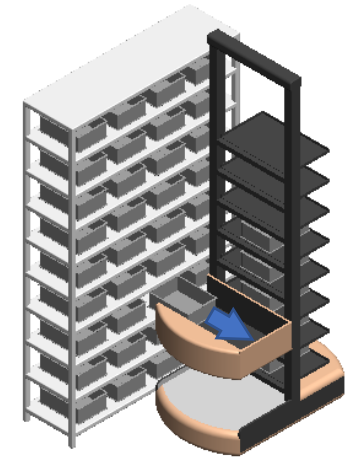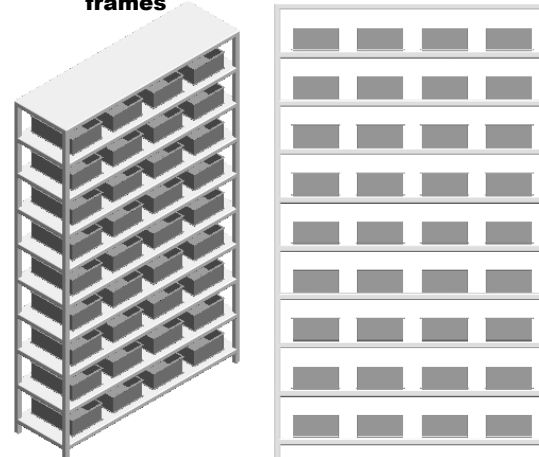
①Pick up the demand material frame

②Move to the empty layer (rise)
③Take the clamping jaws and rotate
④Put material frame to each layer

Material/Product Storage
③Racking for Frame/Fallet & 4-way Shuttle

4-way shuttle rack

Lifting machine

Outbound direction

Receive products and deliver to the next project

Roller type AGV

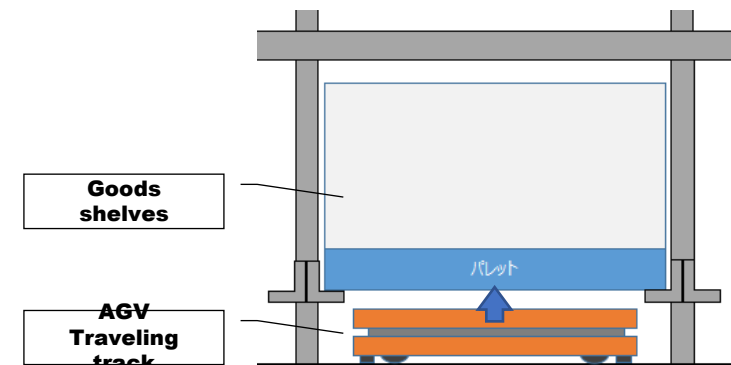**Multi-level bin handling AGV**

. Shuttle car travels backward and forward in the rack

.The lift table of the shuttle car lifts the pallet to move
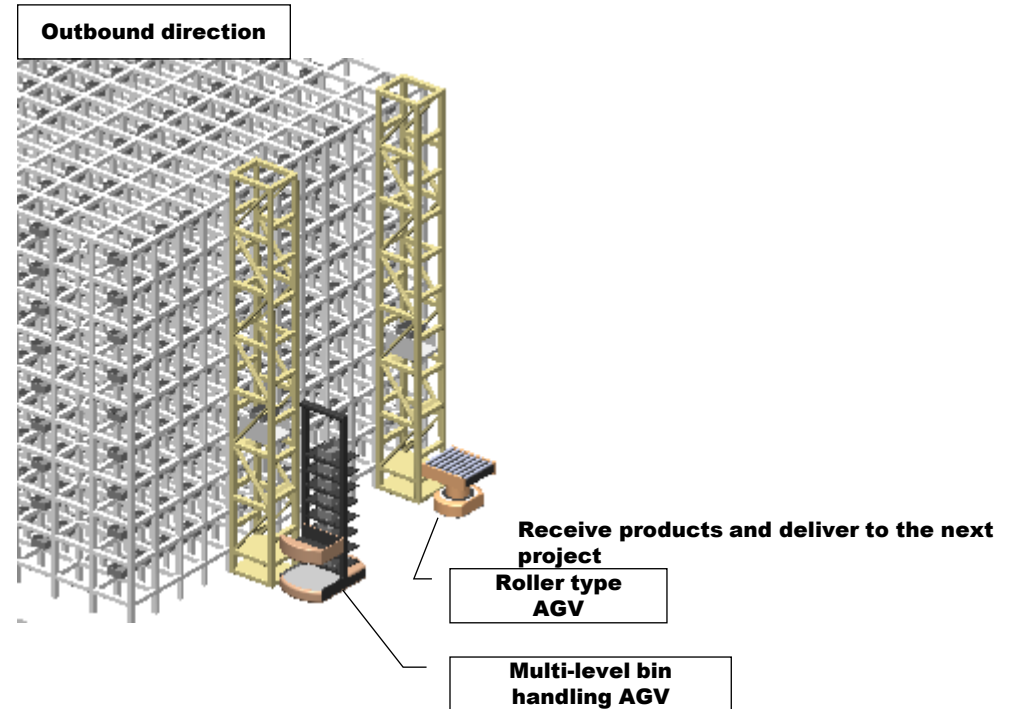
Reference

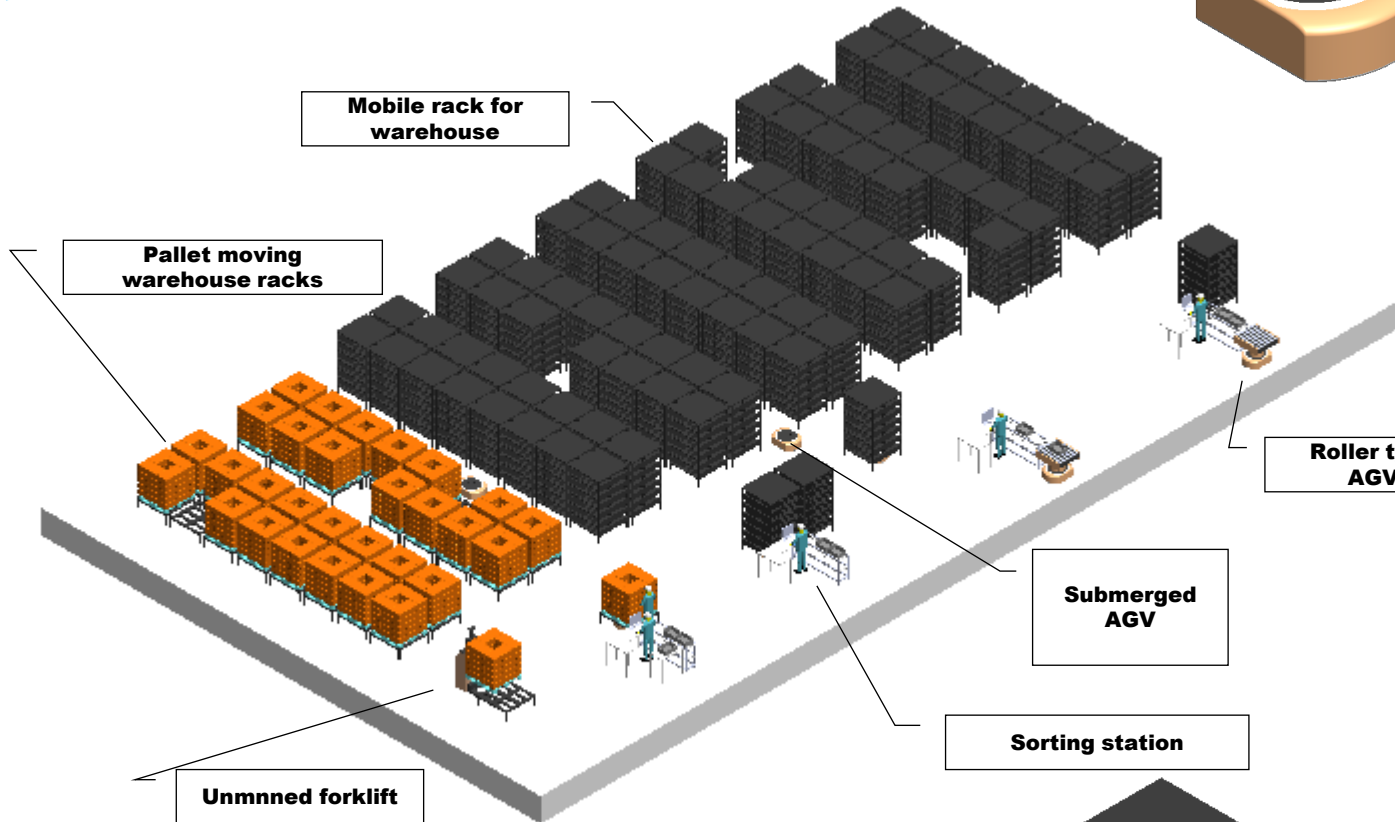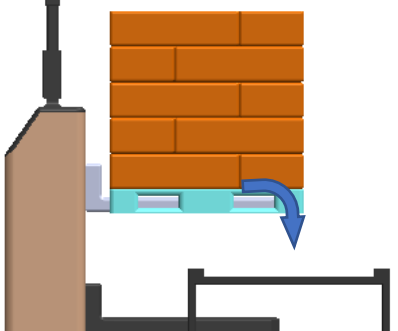| Project	Specification
W：width	1,030mm
D：Depth	980mm
H：Height	128mm
A：Lifting and lowering stroke	60mm
Load	1,200Kg
Movement speed	1.2m/s

Goods shelves

AGV Traveling track

パレット

Material/Product Storage
④Mobile Rack Warehouse &Submerged AGV

Mobile rack for warehouse

Pallet moving warehouse racks

Submerged AGV

Reference style

Project	Specification
W:Wide	1,200mm
D:Depth	800mm
H:High	250mm
A：Lifting and lowering stroke	60mm
Load	1,000Kg
Movement speed	1.2m/s

Roller type AGV

Reference style

Project	Specification
W:Wide	940mm
D:Depth	760mm
H:High	566mm
Load	300Kg
Moving speed	1.2m/s

Roller type AGV

Submerged AGV

Sorting station

Unmanned forklift

Unmnned forklift

Reference style

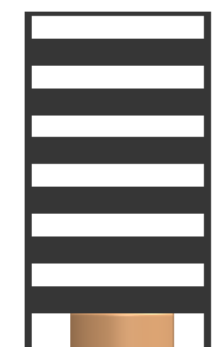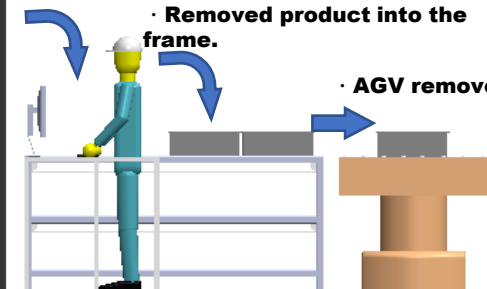| Project	Specification
W:Wide	1600mm
D:Depth	900mm
H:High	2,000mm
A：Lifting and lowering stroke	2,000mm
Load	1,000Kg
Movement speed	1.0m/s

· Load goods onto pallet moving warehouse racks

· Move by submerged AGV
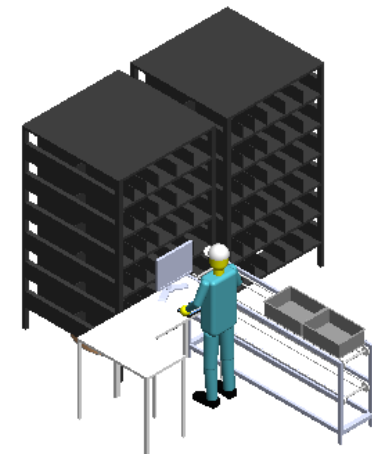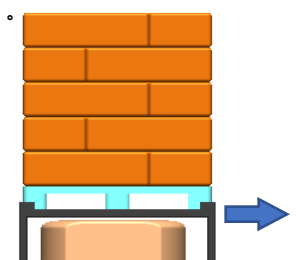
· Remove the required products from the racks.

· Removed product into the frame.
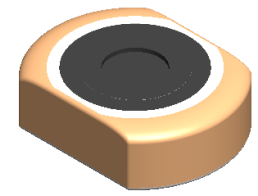
· AGV remove the frame.

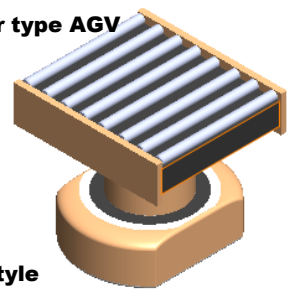# Goods Handling Area （Material Storage）

Material frame racks for high-rise

· Take the material frame as the unit to store the materials and products.

Multi-layer material box conveying AGV

· Transfer multiple material frames at once

4-way shuttle racks

· Take the pallet / material frame as the unit to store the materials and products.

Pallet racks for high-rise

· Take the pallet as the unit to store the materials and products.

Unmanned forklift

· Unloaded products to achieve unmanned handling and storage

Transfer to the automatic warehouse

Material frame handling conveyor line

Stacking robots

· Automated disassembly of unloaded prod

· The material frame on the pallet is scanned by the 3D sensor, the position information is read, and then the information is fed back/transmitted to the robot, and the material frame is taken out and discharged to the conveying line.

益 诚

Goods Handling Area（Out of Warehouse）
· Delivery Method of Semi-finished Products/Finished Products

Automatic handling to truck/van sites

Splitting shipping

Automatic handling to truck/van sites

Pallet supports

Unmanned forklift

Take the pallet as the unit to shipping

Pallet handling conveyor line

Unmanned forklift

Pallet stand Conveyor lines for transporting pallets

Multi-layer material box conveying AGV

Conveyor lines for transporting pallets

Palletizing robot

Automatic handling to truck/van sites

Removing the corresponding products from the shelves →Discharge to the conveyor line

Robots palletize material frames

Conveyor lines for transporting material frames

Production Area / Semi-finished Product Processing Area
· Semi-finished Product Handover

Multi-layer material frame conveying AGV

Semi-finished product feeding machine

Multi-layer material frame conveying AGV

Forming machines (Stamping machines)
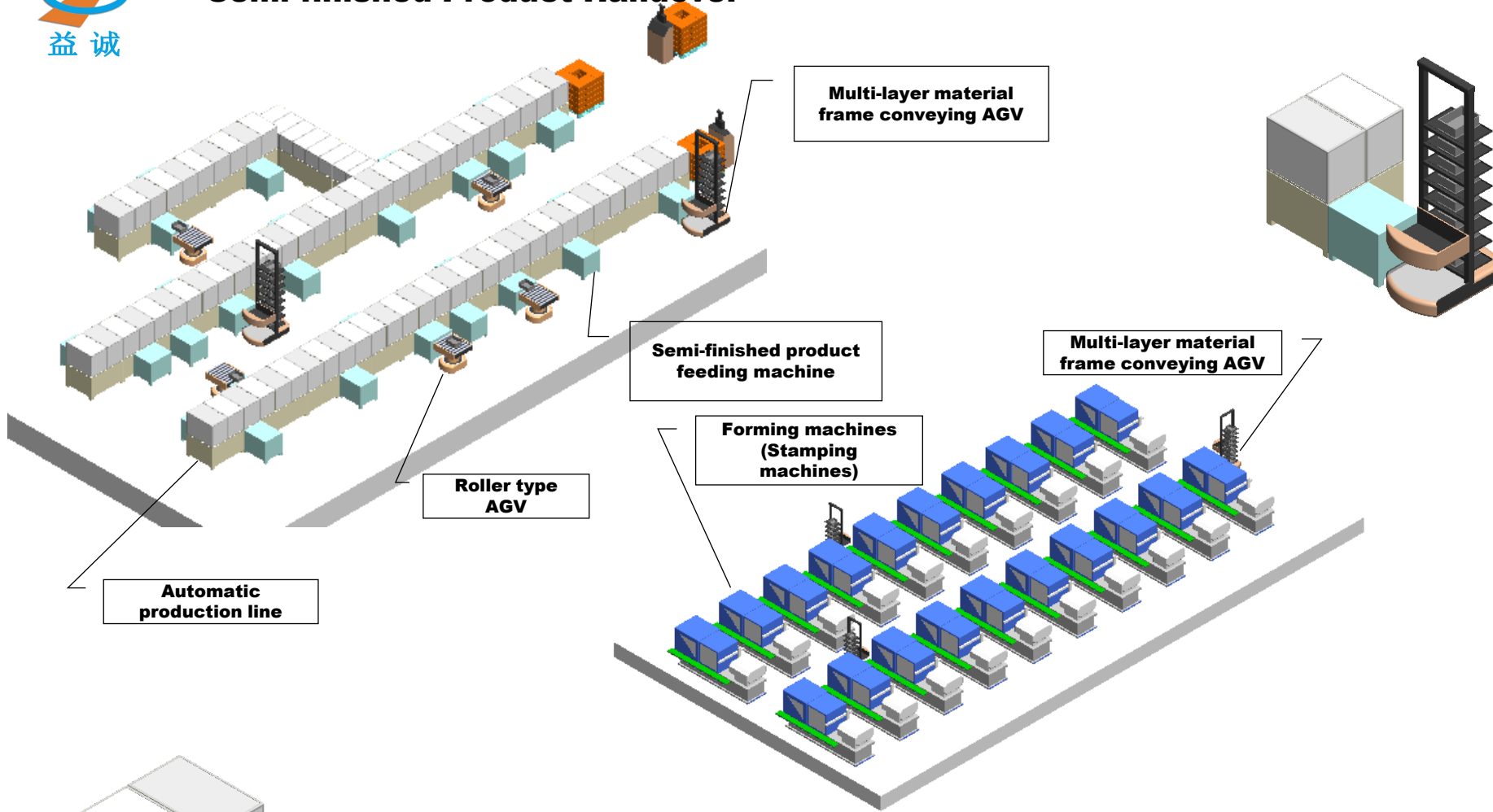
Roller type AGV

Automatic production line
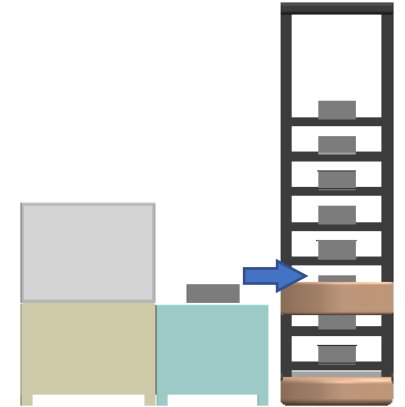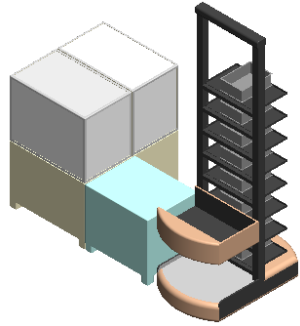
①Recycling Empty material frame
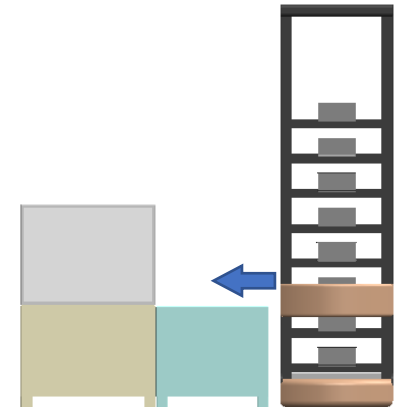
②Feed the material frame to the semi-finished product feeder

③Move towards the next semi-finished product feeder.
   Repeat ①②
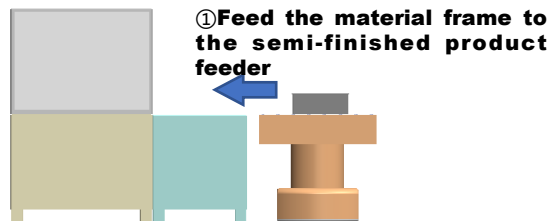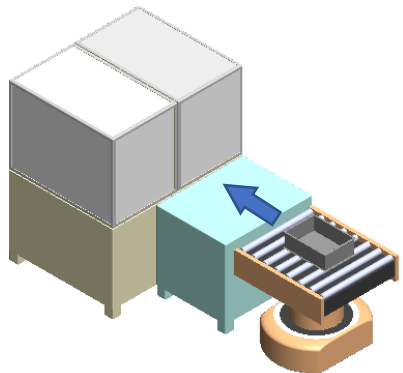
①Feed the material frame to the semi-finished product feeder
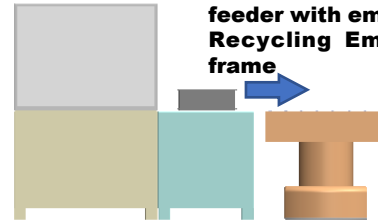
②Move to the semi-finished feeder with empty frames. Recycling Empty material frame

System Overview

Customer's Existing System	Automation Warehouse System

upper system

Management System ERP

↑ Upload warehouse in and out data

WMS / WCS

WMS

InterFace Table

WMS/WCS Warehouse in and out instructions

WiFi

↑ Warehouse in and out request

Material Management/Operator

PC

PDA

Label Printer

对应OS Windows IOS Android

Control panel

PLC

conveyor line

Lifter

Automatic warehouse

PC

AGV AGF
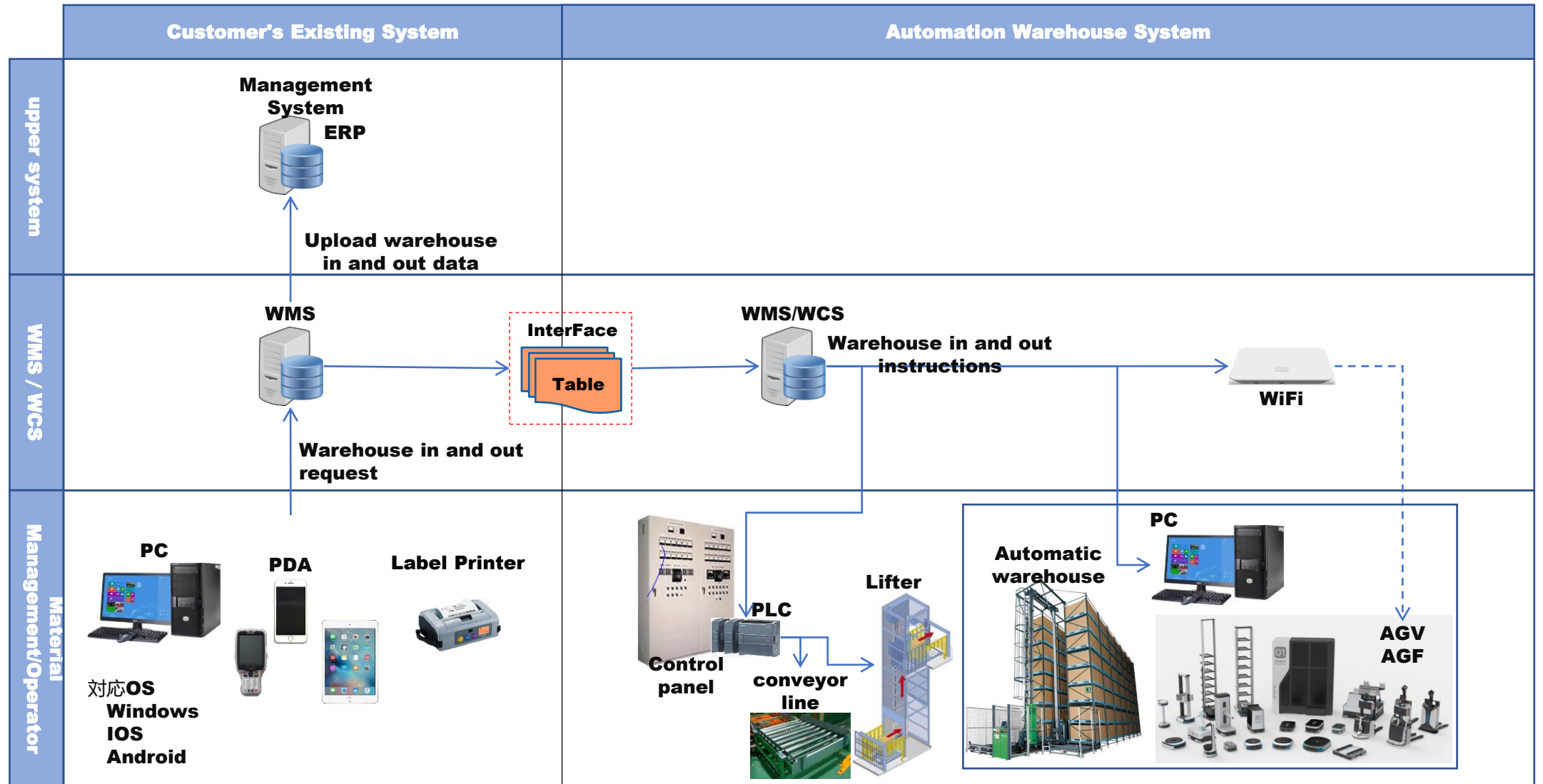
Basic Functions of WMS（Warehouse Management System）

入荷管理

• 入荷する製品数や
リストを管理

Warehouse management function：What products can be grasped and how much to stock.

■Warehousing plan/actual warehousing

■Details of warehousing plan

■Returns

■Simple quality inspection

Warehousing quantities vary by date, but these functions can be used to quickly grasp.

在庫管理

• 在庫数の把握や
ロケーション管理

Inventory management function: It can manage the inventory data in real time.

■Inventory Search	■Position movement
■Inventory adjustment	■Waste disposal
■Supplementary (Regular・Urgent)	■Product resume
■Easy to move	

"Batch management" and "SKU management" can also be realized according to "Product code", "Product name", etc.

出荷管理

• 出荷製品の管理や
ピッキングリストの作成

Warehouse out management functions：a series of operations corresponding to warehouse out management

■Warehouse out plan/actual warehouse out	■available inventory
■Return	■Sorting details
■Allocation Details	■Supplier returns

■Simple quality inspection

■Packaging

If there is an error in the delivery, the recipient may be able to file a customer claim. Let's make use of these functions to reduce errors.

棚卸し管理

A_4_5
B_2_3
C_1_1

• 棚卸の状況把握

Unloading management function: it can make the inventory work more efficient by managing the information of the inventory work.

■Inventory instructions

■ Physical inventory

■ Inventory difference details

■Inventory report

■Easy inventory

Depending on the size of the warehouse, taking inventory is a very labor-intensive job. Let's use the system to save labor.

Basic Functions of WMS（Warehouse Management System）

Documents. Label Issuing Function: no time consuming input jobs as it is simple to issue documents and create each label

■**Issue delivery notes**

■**Issue packing instructions**

■**Issue courier note**

■**Issue goods labels**

■**Issue price tags**

Documents and labels are necessary tools to advance the work. In order not to delay the work, let the system do the issue.

Other expansion functions

WMS provide characteristic functions for each product in addition to the basic functions required at any logistics site

Operation management functions

WMS also has a "BI" function. You can set up the environment via the GUI (Graphical User Interface: icons displayed on the screen, etc.), which also corresponds to Excel and CSV output.

■**Easy status inquiry**

■**Operation progress query**

■**Different operators work efficiency KPI**

According to this, it is possible to grasp the real-time situation and improve it quickly.

Revenue and Demand Management Functions

Automatic calculation is possible through the WMS based on demand management.

■**Daily income and expenditure planning, actual management**

■**Issuance of request forms**

The "Daily Income and Expenditure Plan, Actual Management" is controlled by "Calculation Account Unit".

Advantages and Disadvantages of WMS

The advantages of WMS import are broadly divided into 4 categories:

①Visualization of inventory status

The benefit of WMS import is "inventory visualization". WMS performs quality inspection through applications such as portable terminals in the warehousing business.

After the quality inspection, it will be reflected in the inventory in real time, and the inventory status will be displayed instantly. In addition, by performing expiration date and batch management, you can grasp the status of the product

If the first-in, first-out function is utilized, the products with a long production date can be produced first, and by managing the shelf life, it is also possible to control that expired products will not be shipped by mistake.

In addition, by performing location management, it is possible to know where the goods are. The charm of WMS is that it can help improve the efficiency of production, procurement, and sales of goods by grasping the inventory status in real time.

②Reduce working time

If you do not use WMS for warehouse business, you need to manually enter all the information.

Orders sent by fax need to be entered manually as shipping information, and incoming goods would have to be entered manually by many clerks in order to be reflected in the inventory information, and so on. WMS can digitize these analog services.

The digitized order information and expected stock information can be combined with the WMS to carry out delivery instructions and receiving instructions. In addition, the actual results of delivery and receiving shipments can also be collaborated with the basic system.

③ Improve the accuracy and efficiency of logistics operations

The biggest benefit brought by the introduction of WMS can be said to be "improving the accuracy and efficiency of logistics operations". Because warehouse operations and confirmation are all done by humans, human errors occur, and a waste of time occurs. By utilizing WMS, the inspection system using mobile terminals and barcodes reduces personnel errors, and improves inventory accuracy by digitizing inventory information, thereby greatly improving logistics quality. What is the quality inspection work performed automatically by mobile terminals? Where? how many? Based on clear location management, the most suitable picking route is issued, and useless work instructions are eliminated, thereby improving work efficiency.

④Cost reduction

Costs can also be reduced by introducing a WMS. Although it costs a lot of money at the beginning of the implementation, the current system of manual work can significantly reduce labour.

In addition, the reduction of human errors through the WMS will also reduce costs in the long run, as labour can be controlled.

Disadvantages of WMS Import

The downsides of WMS import are cost and compatibility. WMS varies in price according to system specifications, and is a metered fee system.

Additionally, in order to use WMS effectively, there are educational and mentoring costs. It is important to develop a pre-import operation manual and on-site personnel training, and to develop a coordination system.

It is also important how you choose the type of WMS to import. Importing a mismatched WMS can result in significant cost and labor waste.

※The main system and compatibility are also important.

Thank you!