Let's grow together

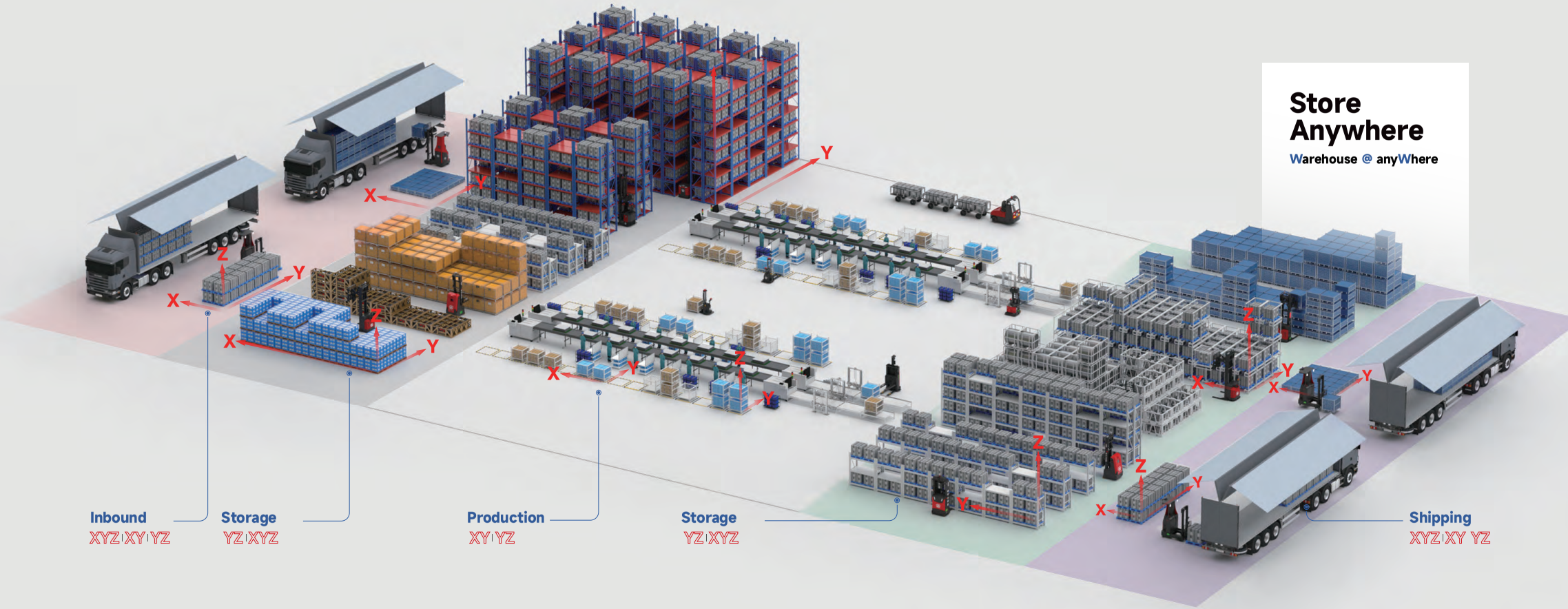
MOVER

WAELLER

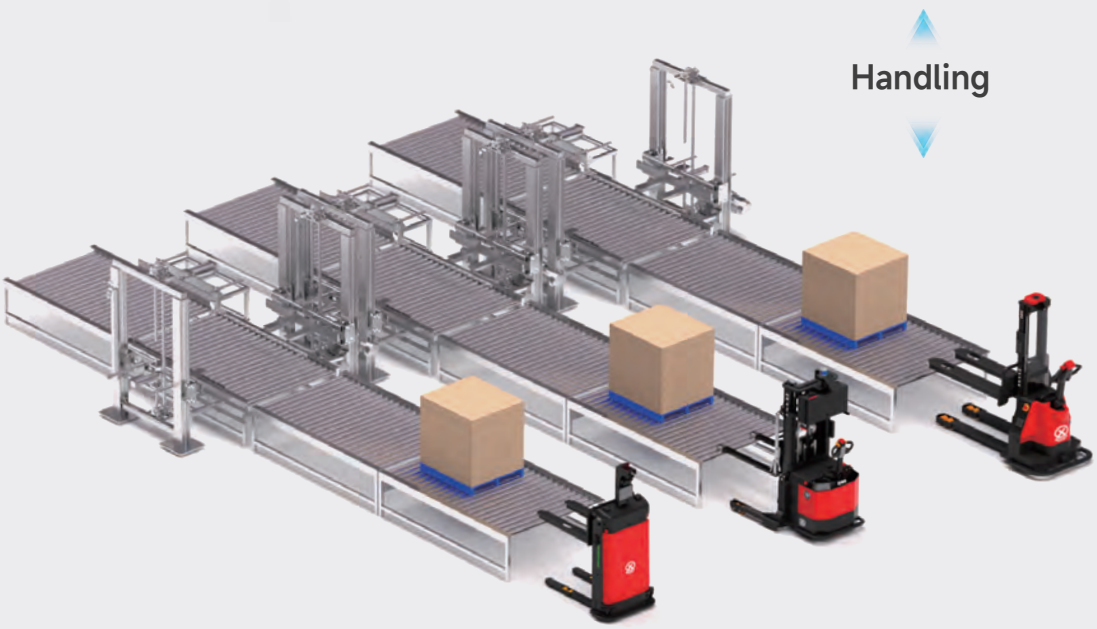
WAREHOUSE @ANYWHERE

Digital, Intelligent Next-Generation Warehousing

W@W Distributed Digital Warehouse

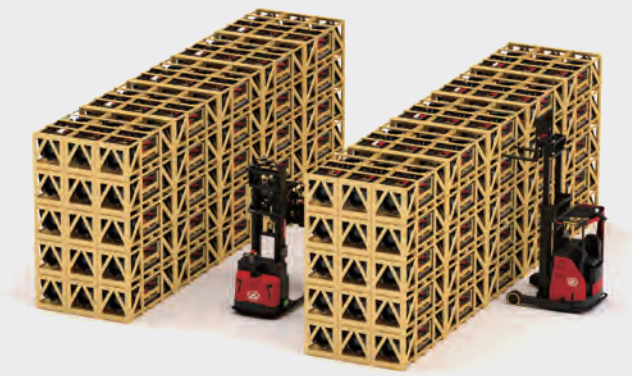


1 Workstation



2 Small Items

3 Block & Cage Stacking



Crates

Specialized Carriers

Pallets

Retainable Storage Frames

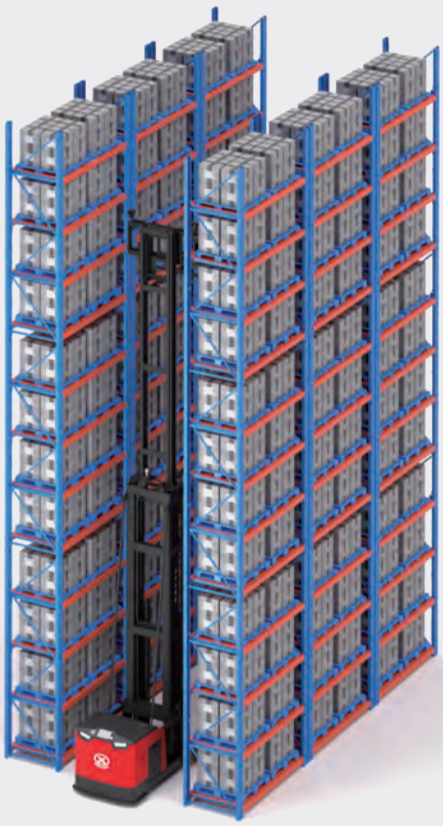
4 Cage Stacking

Pallet Cages

Specialized Cages

5 Shelves

Low-Level Shelves



Narrow-Aisle Racking

Mid-Level Shelves

High-Level Shelves

6 DASP

Digital Autonomous
Order picker

7 Frame Stacking

Removable Shelves

W@W
DASP Order Picking System

Material Handling to Material Moving

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Goods-to-Person & Small Parts Storage

EP Autonomous Order Picking Solution

EP's autonomous order picking solution is a modular system built around two core components: DAS (Digital Autonomous System) and DASP.
The DAS autonomous factory functions as the central decision-making hub, while the DASP autonomous order picking system and robots carry out warehouse operations such as material inbound and outbound handling, picking, sorting, and internal transport.
With its modular and scalable design, the system is especially well suited for small and medium-sized companies, allowing automation to be introduced step by step and tailored to specific operational needs. It enables autonomous material management functions including real-time inventory tracking, stock monitoring, FIFO control, and automated warehouse rotation.
Designed to address the challenges of small materials, high SKU variety, and complex inventory management, this solution provides a flexible and cost-effective path to warehouse automation.

Use Cases

- Production facilities with high material turnover
- Spare parts warehouses

Flexible and minimal deployment

- No infrastructure: the ground is level without modification
- Quick deployment: 3-5 days

Worry-Free Service

- Lifetime digital after-sales service with effortless add-on integration—anytime, anywhere.

Space Saving

- Extremely high storage density: 20m² can accommodate more than 1000 storage positions
- Ultra-fast container handling speed: 180 containers/hour with fully automated high-speed entry/exit system
- Rotary boxes are available in both large and small sizes and can be flexibly combined.

Management Return

- Digital and transparent management of goods information: accurate and real-time traceability of goods information
- Eliminate information barriers between supply and demand.
- Supports integration with various external systems, including ERP, WMS, MES, and WCS.

DASP Order Picking System

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Holistic Coordination | Real-Time Driving | Data Empowerment

DAS Factory Digitalization is the intelligent command center and decision engine for DASP, going beyond the capabilities of traditional warehouse management systems. DAS enables holistic coordination, real-time execution, and data-driven decision-making, transforming static warehouses into dynamic, responsive smart logistics environments. Its modular architecture makes it especially suitable for small and medium-sized companies, allowing digitalization and automation to be implemented step by step and scaled as operations grow.
DAS provides DASP with true intelligence and perception, enabling stable, efficient autonomous operations while unlocking data value across the entire supply chain. It serves as a core digital foundation for smart manufacturing and lean logistics.

Core Value

01

The dispatching revolution from "passive execution" to "active command"

Millisecond-level task optimization
Plan the optimal path
Effectively improve work efficiency

As the command hub, DAS enables millisecond-level dynamic task planning. When massive inbound and outbound warehouse instructions surge in, DAS analyzes equipment status, locations, and task queues in real time to compute globally optimal solutions rather than local optima. This effectively prevents equipment congestion and path conflicts, ensuring absolute smoothness in warehouse "traffic" flow. By maximizing cluster coordination efficiency, it precisely matches production rhythms and achieves uninterrupted continuous operations.

02

Transparent management from "information island" to "digital twin"

Material information is visible in real time to facilitate accurate decision-making

As a digital twin platform, DAS achieves 1:1 real-time replication of the entire warehouse's operational status in the virtual environment through data acquisition. Every container's location, status (inbound, in storage, outbound pending), batch, and expiration date are clearly visible. This not only visualizes inventory management but also operational workflows, providing managers with unprecedented transparency that serves as the foundation for making precise decisions.

03

Value extension from "internal optimization" to "supply chain collaboration"

Enable real-time data sharing between both ends of the supply chain.

As a bridge for supply chain collaboration, DAS effectively breaks down data barriers between demand-side entities and upstream suppliers, as well as downstream production lines. By deeply sharing data on material consumption, inventory levels, and expected deliveries, DAS empowers suppliers to "anticipate demand" and flexibly adjust their production and shipping plans. This significantly reduces the risks of inventory overstock and material shortages in DASP, transforming these facilities from cost centers into hubs that stimulate supply chain synergy and create win-win value.

04

Smart risk control from "remediation after the event" to "prevention before the event"

Intelligent risk warning and inventory structure optimization

As an all-weather risk monitoring system, DAS features an intelligent risk control model that operates 24/7 to automatically track critical metrics like inventory age, expiration dates, and stock turnover rates for all materials. When preset thresholds are breached (e.g., nearing expiration or slow turnover), the system triggers proactive alerts instead of passive monitoring. This enables managers to intervene early, address near-expiry materials, optimize inventory structures, and ttransition from reactive problem-solving to proactive preventive management – effectively preventing financial losses.

DASP Order Picking System

Standard Version

The system consists of shelves, box picking, modular sized boxes, weighing platforms, and display screens.

1 Module

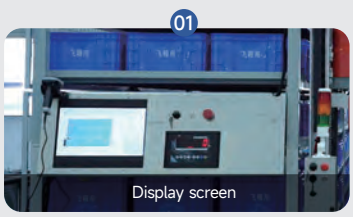
20.46m²
6.2m long × 3.3m wide
Unit area

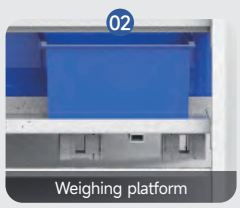
180 boxes/h
Maximum inbound and outbound speed

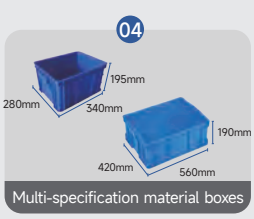
Mix large and small boxes for flexible expansion
Expandable according to site layout without modifying the existing facility.

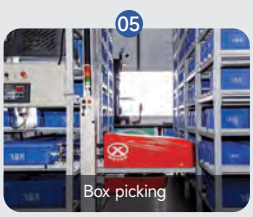
5.5m
Standard height

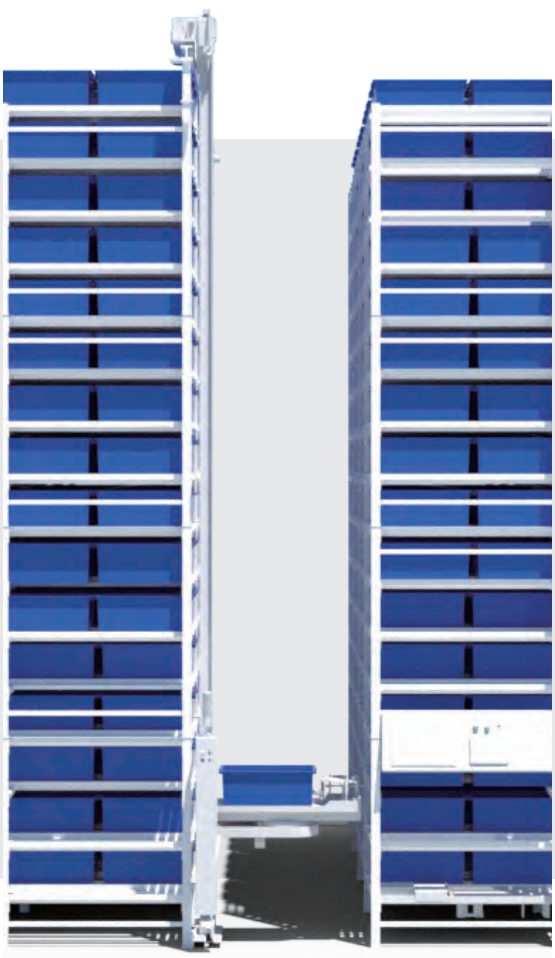
1530 units
Max storage capacity









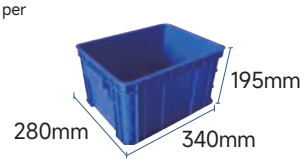


1 Module

Small Box

Unit storage capacity:
1530 units

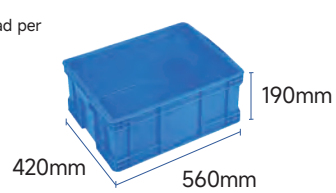
Maximum load per single unit:
20kg



Large Box

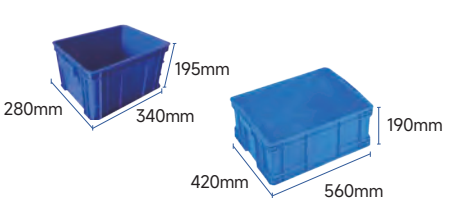
Unit storage capacity:
760 units

Maximum load per single unit:
30kg



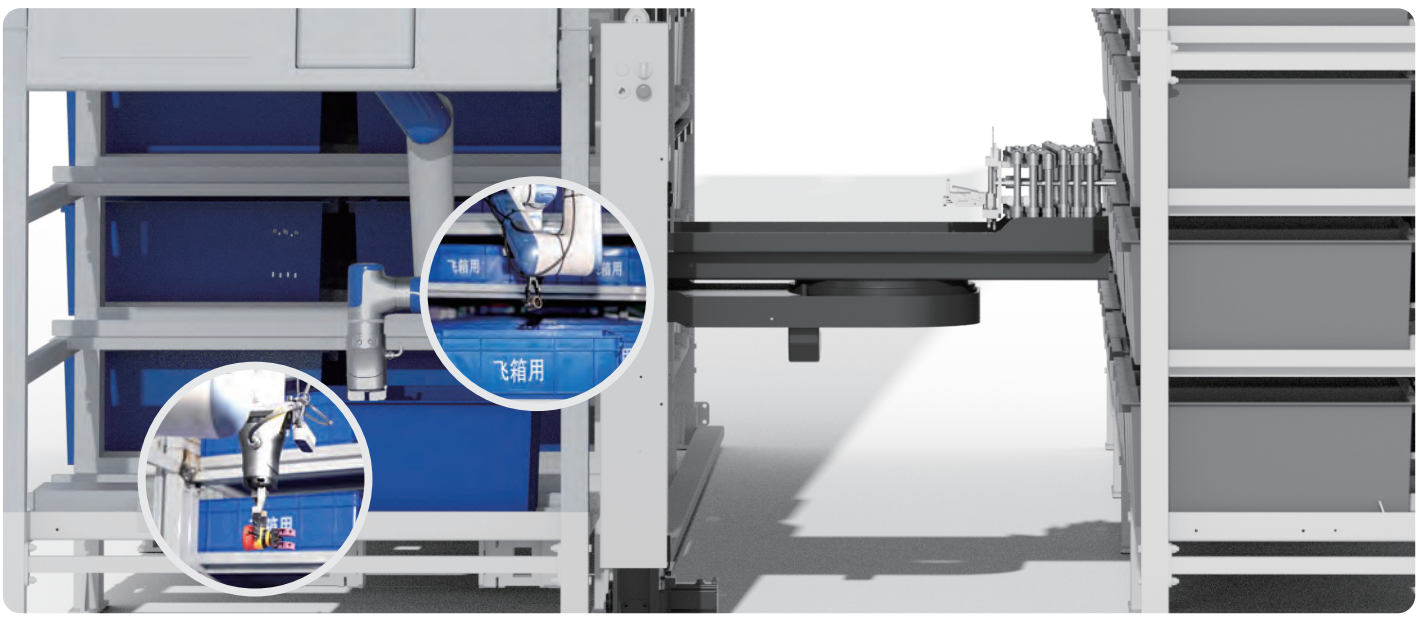
Storage quantity

Unit storage capacity
1145 units



DASP Order Picking System

DASP Order Picking System (Flexible Robotic Arm)
Robot Picking



Workflow

After the goods are released from the warehouse, the robotic arm picks the required parts and goods.

DASP Order Picking System (Material Box Transfer Robot XCL0051)
Robot Box Transfer

Workflow

After the goods are released from warehouse, the XCL0051 transports them to the destination

DASP Order Picking System

DASP Order Picking System (Human-Shaped Robot)
Robot Picking + Box Transfer

Workflow

The embodied dual-arm robot can lift, turn, bend, pick, and transport boxes, enabling integrated picking and transfer operations.

DASP Order Picking System(Human-Shaped Robot)
robot pick+box transfer

Workflow

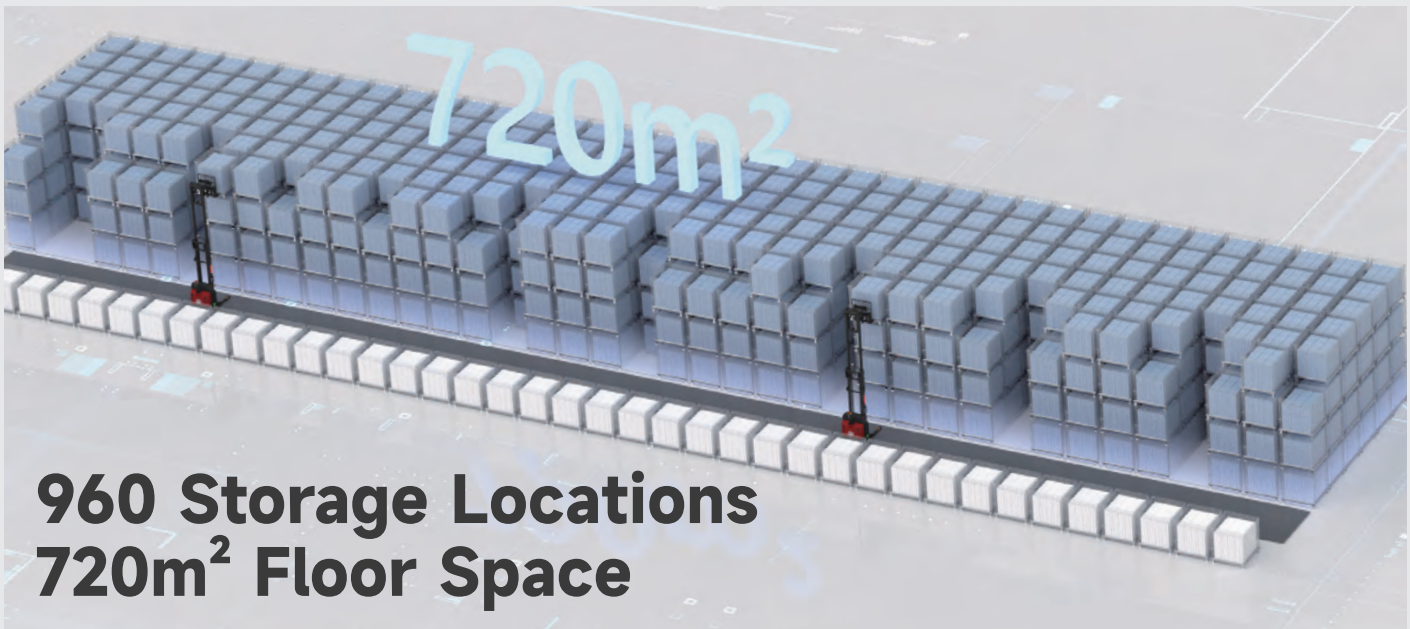
Embodied Single-Arm Picking and Delivery Operation Process: After the material box is released from the warehouse, the single-arm robot picks the required goods and transports them to the destination.

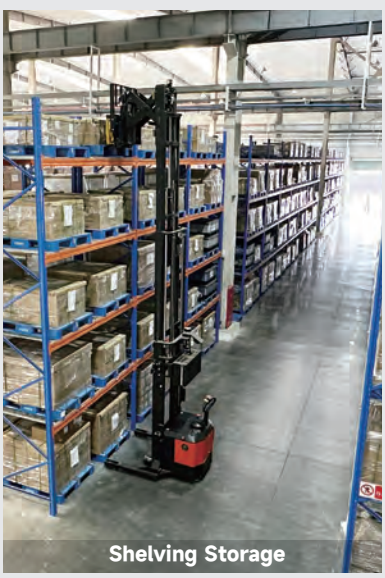
W@W No-aisle Stacking Storage

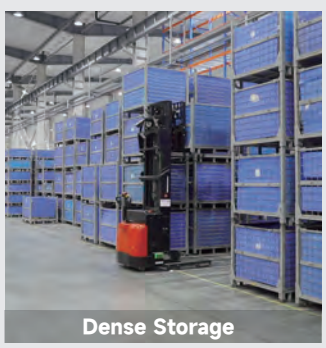
High-Density Stacking Parameters (960 Storage Locations)

Parameter Name		Unit	Value
Storage Locations		units	960 (96 locations × 10units)
Site Information	Total Footprint		720
	Achievable Layout		6 rows × 4 levels × 40 columns [(6 rows × 4 levels × 4 columns) ×10 units]
	Average Outbound Time	min	6
Stacking Robots	Designation		Indoor Reach Truck, Counterbalanced Stacker
	Model		XQE122, XQC201, XSC151
	Quantity Required	units	2 (1 robot per 500 storage locations)
	Maximum Load Capacity	KG	2000
Carrier			Warehouse Cage, Mesh Container, Demountable Rack, Wooden Crate, Pallet, Customized Carrier

Sales Model	Recommended Initial Sales Quantity (Storage Locations)	units	960 (96 locations × 10units)
	"Analysis shows that high-density storage achieves maximum customer benefit at 960 locations and above."		
	Recommended Expansion Reduction Quantity (Storage Locations)	units	96
	"Note: Customers can add or remove storage locations in increments of 96 units."		




Shelving Storage


Dense Storage

Autonomous Products

XQE122 XQC201

CE

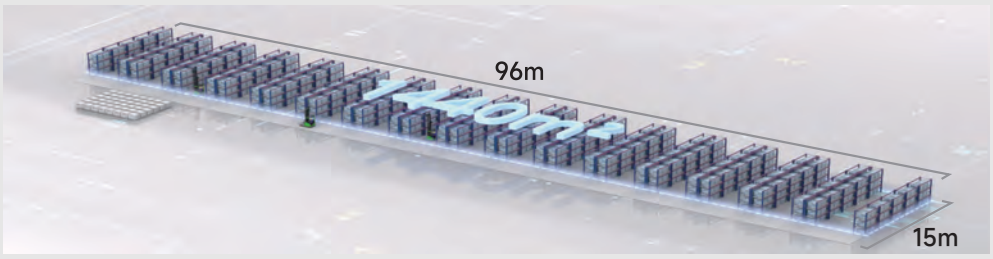
3 Level Shelving

W@W Intelligent dense stacking

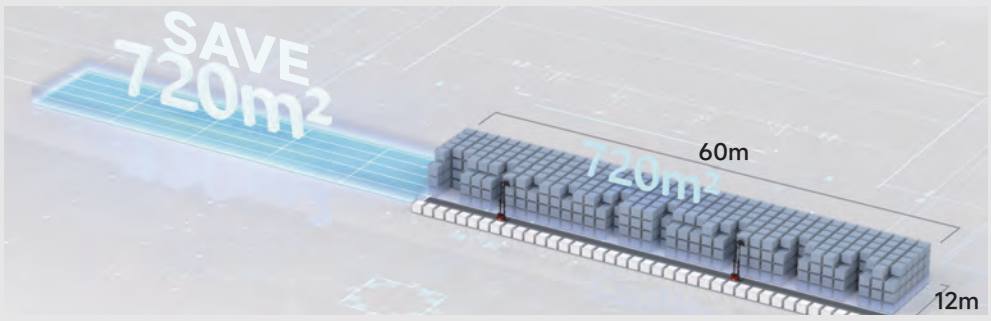
960 Locations
Five-Year Cost Comparison Table

3-Level Shelving VS High-Density Stacking

Comparison Item	3-Level Shelving
Floor Area Eg.Rental:34 USD/m²/year 5-Years-Cost	**1,440m², 244,800USD** 1,440m²*34 USD/m²*5 years=244,800USD
DAS System Cost: 14 USD /Location Digital Management Cost	**None**
Handling Equipment Manual Equipment: 17,000 USD/unit Robotic Equipment: 21,000 USD/unit Auxiliary Equipment: 1,400 USD/unit	**3 units, 21,000 USD** 3units* 7,000 USD= 21,000 USD
Shelving Installation Cost: 55 USD /Location	**52,800 USD** 960 Locations*55 USD /unit=52,800 USD
Load Carriers Plastic Pallet: 25 USD each Wire-Mesh Container:40 USD each	**31,200USD** 480 Locations* 25 USD/Pallet + 480 units* 40 USD/Container = 31,200USD
Labor Eg.10,000 USD/person/year 5-Years-Cost	**3 persons, 150,000 USD** 3 persons * 10,000 USD/year * 5 years = 150,000 USD



High-Density Stacking	Comparison Item
720m², 122,400USD 720m²*34 USD/m²*5years=122,400 USD	**Floor Area** Eg.Rental:34 USD/m²/year 5-Years-Cost
Digitalized Goods Management 960 locations *14 USD = 13,440 USD	**DAS System** Cost: 14 USD /Location Digital Management Cost
2 units,43,400USD 2units*21,000USD+1,400 USD Auxiliary Equipment	**Handling Equipment** Manual Equipment: 17,000 USD/unit Robotic Equipment: 21,000 USD/unit Auxiliary Equipment: 1,400 USD/unit
None	**Shelving Installation** Cost: 55 USD /Location
38,400USD 960Locations* 40 USD /Container = 38,400USD	**Load Carriers** Plastic Pallet: 25 USD each Wire-Mesh Container:40 USD each
1.5persons,75,000 USD 1.5 persons * 10,000 USD/year * 5 years = 75,000 USD	**Labor** Eg.10,000 USD/person/year 5-Years-Cost



Floor Area
Handling Equipment
Shelving Installation
Load Carriers
Labor

Total 499,800 USD
3-Level Shelving

Cost Reduced by
41%
Total 207,160 USD

100%
Digitalization & intelligence Integration

Floor Area
DAS
Intelligent Handling Equipment
Load Carriers
Labor

Total Cost: 292,640 USD
High-Density Stacking

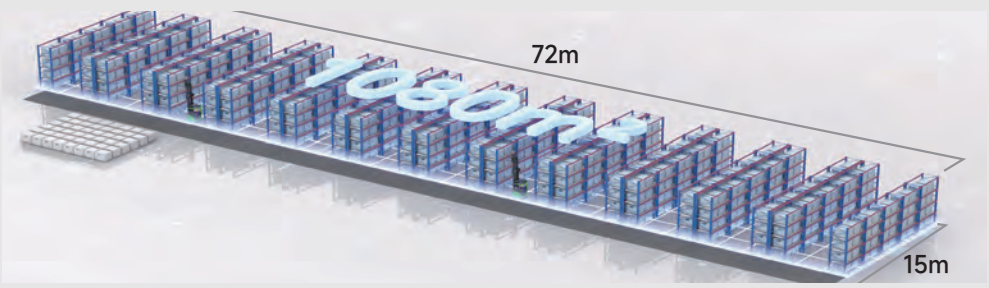
4 Level Shelving

W@W Intelligent dense stacking

960 Locations
Five-Year Cost Comparison Table

4-Level Shelving VS High-Density Stacking

Comparison Item	4-Level Shelving
Floor Area Eg.Rental:34 USD/m²/year 5-Years-Cost	**1080m²,183,600USD** 1080m²*34 USD/m²*5 years=183,600USD
DAS System Cost: 14 USD /Location Digital Management Cost	**None**
Handling Equipment Manual Equipment: 17,000 USD/unit Robotic Equipment: 21,000 USD/unit Auxiliary Equipment: 1,400 USD/unit	**2 units, 34,000 USD** 2units*17,000 USD=34,000 USD
Shelving Installation Cost: 55 USD /Location	**52,800 USD** 960 Locations*55 USD /unit=52,800 USD
Load Carriers Plastic Pallet: 25 USD each Wire-Mesh Container:40 USD each	**31,200USD** 480 Locations* 25 USD/Pallet + 480 units* 40 USD/Container = 31,200USD
Labor Eg.10,000 USD/person/year 5-Years-Cost	**3 persons, 150,000 USD** 3 persons * 10,000 USD/year * 5 years = 150,000 USD



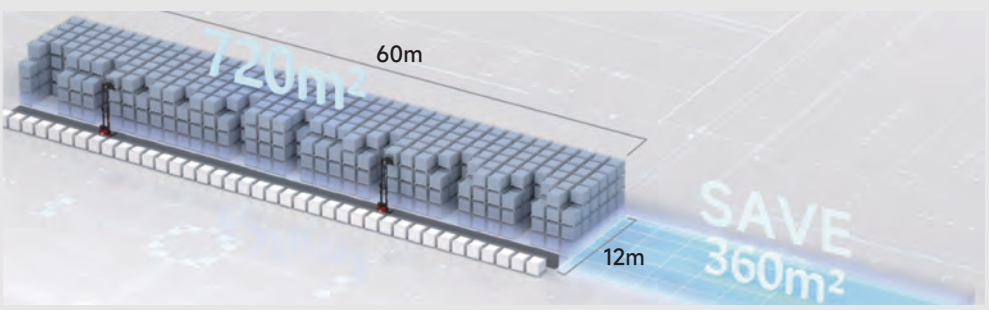
Floor Area
Handling Equipment
Shelving Installation
Load Carriers
Labor

Total 451,600 USD
4-Level Shelving

Cost Reduced by
35%
Total 158,960 USD

100%
Digitalization & intelligence Integration

Comparison Item	High-Density Stacking
Floor Area Eg.Rental:34 USD/m²/year 5-Years-Cost	**720m², 122,400USD** 720m²*34 USD/m²*5years=122,400 USD
DAS System Cost: 14 USD /Location Digital Management Cost	**Digitalized Goods Management** 960 locations *14 USD = 13,440 USD
Handling Equipment Manual Equipment: 17,000 USD/unit Robotic Equipment: 21,000 USD/unit Auxiliary Equipment: 1,400 USD/unit	**2 units,43,400USD** 2units*21,000USD+1,400 USD Auxiliary Equipment
Shelving Installation Cost: 55 USD /Location	**None**
Load Carriers Plastic Pallet: 25 USD each Wire-Mesh Container:40 USD each	**38,400USD** 960Locations* 40 USD /Container = 38,400USD
Labor Eg.10,000 USD/person/year 5-Years-Cost	**1.5persons,75,000 USD** 1.5 persons * 10,000 RMB/year * 5 years = 75,000 USD



Floor Area
DAS
Intelligent Handling Equipment
Load Carriers
Labor

Total Cost: 292,640 USD
High-Density Stacking

02 W@W No-aisle Stacking Storage

Indoor Reach Stacking AMR XQE122

Product

The XQE122 represents a new generation of indoor reach-type Autonomous Mobile Robots (AMRs), engineered to deliver comprehensive material handling automation. Combining high-precision stacking with autonomous transfer, With a load capacity of 1,200 kg and a maximum lifting height of 5.5 m, the agile XQE122 delivers optimized distributed warehousing solutions across diverse environments.

CE

Feature

Perfect for Complex Warehouse Applications

- Reaches a lifting height of 4.5 m
- Compact size with its length to fork face of 1365mm

Precise Stacking and Multiple Control Accesses

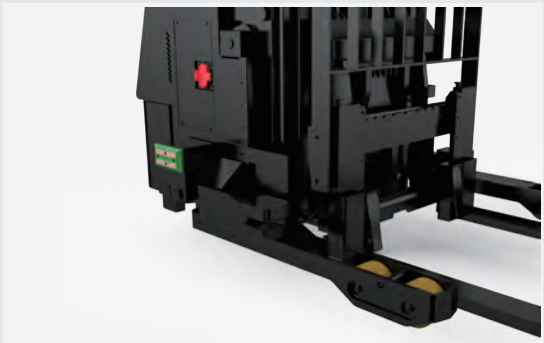
- Positioning accuracy of ±10mm and real-time 3D vision-guided load alignment

Multi-layered Safety Protection

- Equipped with an overhead 3D obstacle-avoidance camera
- Adopting a fork tip photoelectric sensor and three PLD Lidar for 360° obstacle scanning.

Sustainable Power Management

- Equipped with a 48V/150Ah lithium battery supporting opportunity charging and maintenance-free operation
- 48V/100A external charger for rapid manual recharging.
- Optional 48V/100A automatic charging station for self-docking during workflow pauses and maintaining 24/7 readiness without human intervention



Parameters

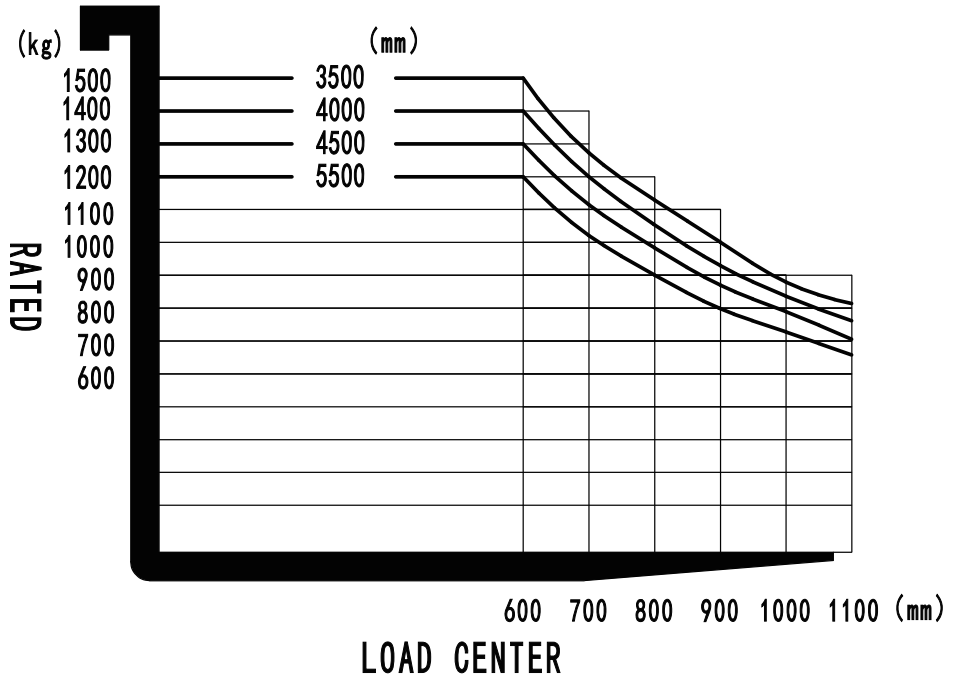
XQE122

Basic parameters	1.1	Manufacturer	-	-	EP
	1.2	Model	-	-	XQE122
	1.3	Drive	-	-	Electric
	1.4	Operator type	-	-	Pedestrian
	1.5	Load capacity	Q	kg	2000
	1.6	Service weight	-	kg	2880
	1.7	Navigation	-	-	3D SLAM / QR code
	1.8	Communication	-	-	Wi-Fi/5G
	1.9	Positioning accuracy	-	mm	±10
	1.10	Indoor / Outdoor	-	-	Outdoor
Battery parameters	2.1	Battery voltage / Nominal capacity	-	V/Ah	48/150
	2.2	Battery type	-	-	Li-ion battery
	2.3	Battery weight	-	kg	100
	2.4	Usage time	-	h	5/6
Size	3.1	Dimensions	l1/b1/h1	mm	2426/1240/2718
	3.2	Load centre distance	c	mm	600
	3.3	Load length	x	mm	318
	3.4	Wheelbases	y	mm	1265
	3.5	Fork vertical length	l2	mm	1197
	3.6	Fork dimensions	s/e/l	mm	40/100/1200
	3.7	Distance between fork-arms	b5	mm	350-780
	3.8	Height with forks lowered	h13	mm	60
	3.9	Lifting height	h3	mm	4500
	3.10	Lateral reach distance	-	-	-
	3.11	Outer width of forks	-	-	-
Other parameters	4.1	Forward distance	-	-	590
	4.2	Travel speed, laden/unladen	-	m/s	1/1
	4.3	Max. gradeability, laden/unladen	-	%	3/5
	4.4	Maximum floor level deviation	-	mm	≤20
	4.5	Turning radius	Wa	mm	1544
Channel requirements	5.1	Aisle width for pallets 1000×1200 lengthways	Ast	mm	1440
	5.2	Aisle width for pallets 1000×1200 crossways	Ast	mm	2102
	5.3	Aisle width for one-sided loading/unloading (pallet: 1200 mm L × 1000 mm W)	Ast	mm	2800
Safety	6.1	Emergency stop button	-	-	Two sides
	6.2	Voice and light	-	-	Audible and visible
	6.3	Front protection	-	-	Lidar
	6.4	Rear protection	-	-	Fork root lidar + Physical bumper
	6.5	Side protection	-	-	Lidar
	6.6	Physical bumper	-	-	Front + two sides
	6.7	Pallet in-place detection switch	-	-	Rear Fork Root
	6.8	Charging power	-	-	-

If there are improvements of technical parameters or configurations, no further notice will be given.
The diagram shown may contain non-standard configurations.

Load Curve

XQE122



Option List

XQE122

Option List	7.1	Battery	●48V/150Ah
	7.2	Charger	●48V/100A External Charger
	7.3	Automatic charging station	-
	7.4	Warning light	●Turn light ●Warning light
	7.5	Front protection	●Lidar ○Dual-side LiDAR
	7.6	Rear protection	●Fork tip lidar ●Fork root lidar
	7.7	Interaction method	●Screen ○Buttons

Note ●Standard ○Optional -Inconformity

W@W Racking Storage

Standard-aisle Racking

Vehicle Selection Guide for Standard-Aisle Racking by Height						
	Standard-Aisle Low-Level Racking			Standard-Aisle Medium-Level Racking		Standard-Aisle High-Level Racking
Racking Height(m)	<3m			< 6m		< 8.8m
Recommended Vehicle Type	XS1152	XSC081	XSC121	XQE122	XQE151	XQC161
Aisle Width(mm)	2100	2560	2677	2880	2942	3177
Maximum Load Capacity(kg)	1500	800	1200	1200	1500	1600

Product

XS1152

XSC081

XSC121

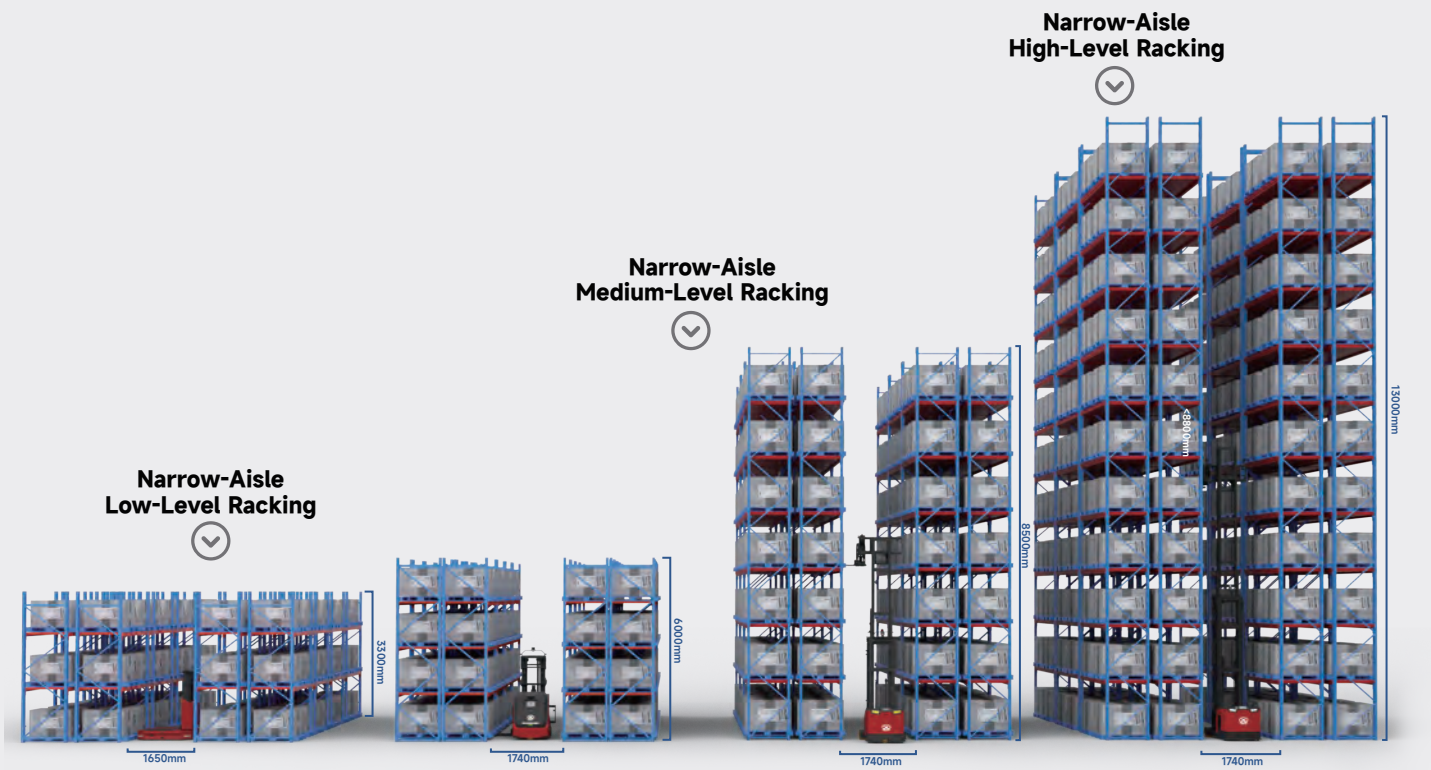
XQE122

XQE151E

XQC161

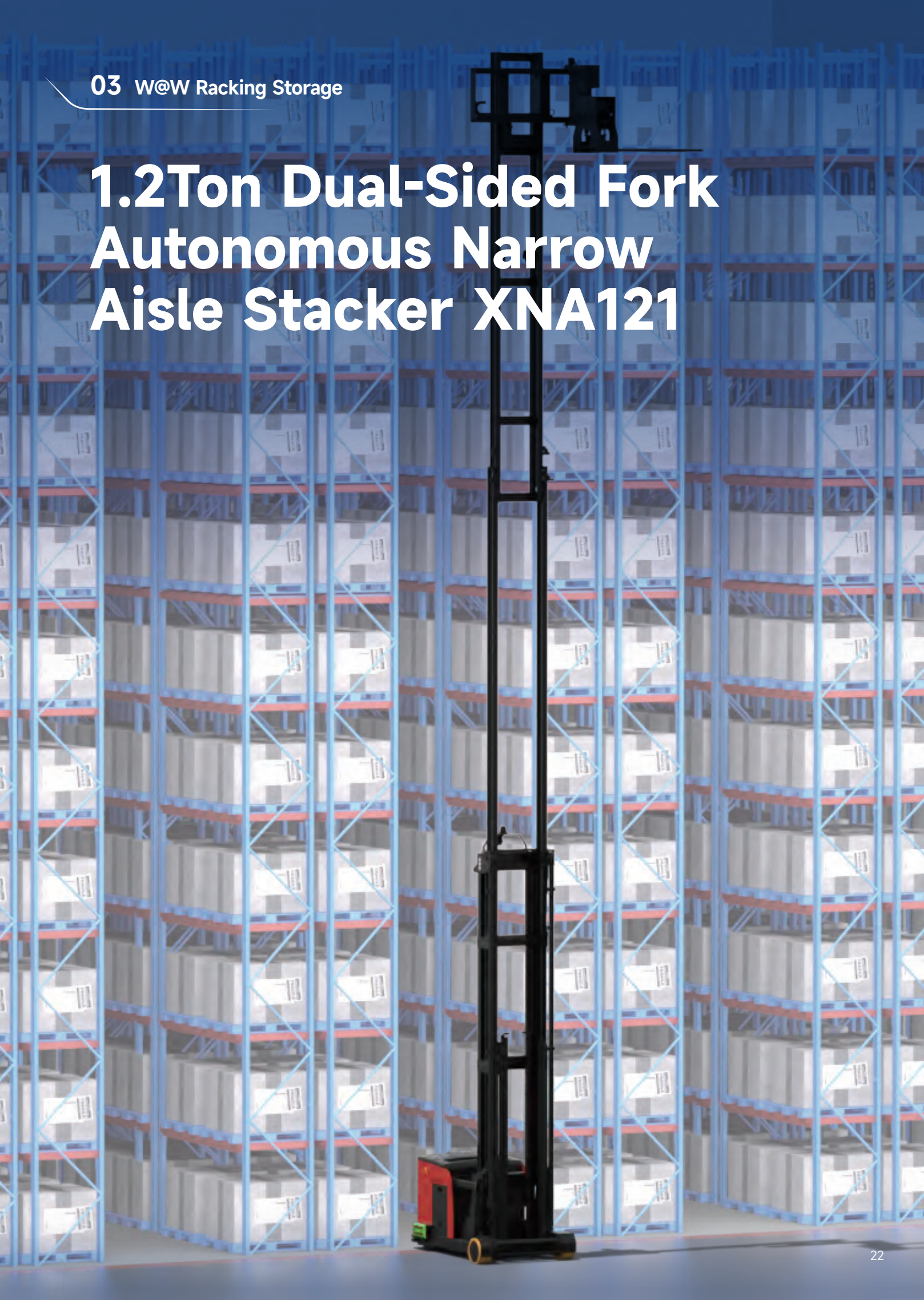
Standard-aisle Racking

Vehicle Selection Guide for Narrow-Aisle Racking by Height				
	Narrow-Aisle Low-Level Racking	Narrow-Aisle Medium-Level Racking		Narrow-Aisle High-Level Racking
Racking Height(m)	<3.3m	< 6m	< 8.5m	< 13m
Recommended Vehicle Type	XSF101	XNA101	XNA121	XNA151
Aisle Width(mm)	1650	1740	1740	1740
Maximum Load Capacity(kg)	1000	1000	1200	1500



Product

1.2Ton Dual-Sided Fork Autonomous Narrow Aisle Stacker XNA121



Intelligent Warehousing: Maximizing Efficiency in Every Aisle

Innovative Dual-Sided Picking.
No Steering.
Perfect Aisle Fit.

1740mm

Narrowest Aisle
Only 1740mm

50%

Saves more than
50% of Storage Space

Dual-Sided Forklift Picking,
Picking from Both Sides, Higher Efficiency

≤1cm

Straight-Line Travel
Lateral Deviation

≤1cm

Target Point Docking
Accuracy

Smooth Forward and Reverse Operation
No Turning and Save More Space

Positioning stability is ensured through multi-sensor fusion navigation using SLAM LiDAR and vision-camera fusion.

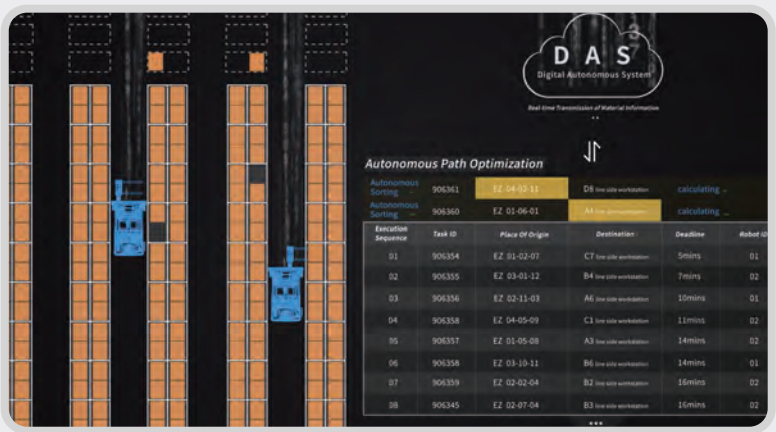
High-Precision Positioning and Navigation Technology for Safe and Efficient Picking in Narrow Aisles

Equipped with SLAM LiDAR + Vision Camera Fusion Positioning Technology, and using a learning-based adaptive lateral control algorithm, high-precision positioning is achieved, ensuring safe and efficient high-altitude operations in narrow aisles.

Digital Warehousing: Movement Creates Data for Smarter Material Management

By leveraging robots to precisely collect data across the entire goods movement chain and synchronizing it in real-time to Digital Autonomous System(DAS), comprehensive digitalization and transparent management of warehouse information are achieved. Real-time visibility of warehouse status provides accurate and efficient data support for warehousing decisions.

DAS Improves Warehouse Management Efficiency by Real-Time Online Monitoring and Updating of Material Flow.



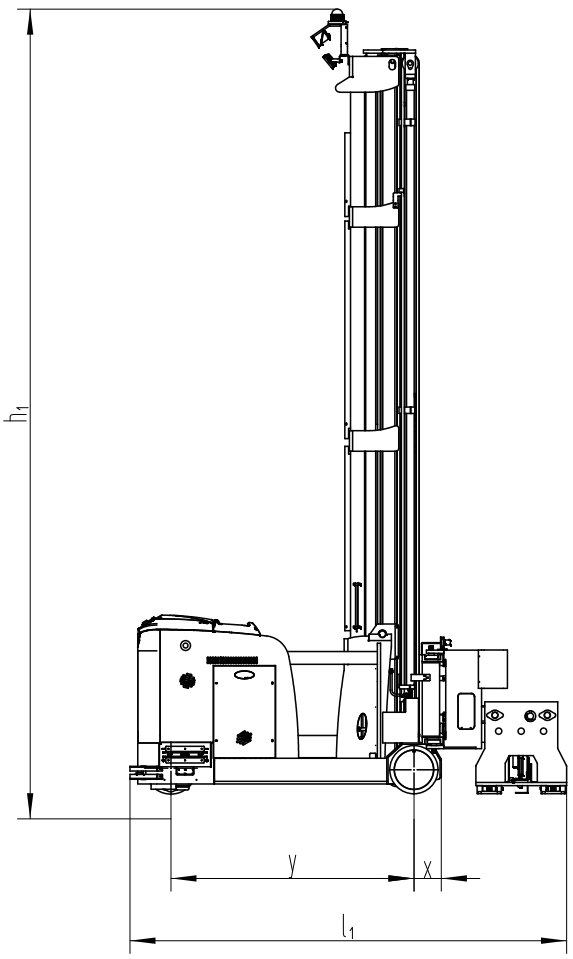
DAS, based on multi-dimensional data such as goods timeliness, transportation distance, and robot position, uses intelligent algorithms to generate optimal handling routes in real-time, planning the best storage areas, optimal storage locations, and the most efficient logistics time to align with production rhythms for first-in-first-out and rapid material supply, significantly improving warehousing efficiency and supporting higher production efficiency.

Basic parameters	1.1	Manufacturer	-	-	EP
	1.2	Model	-	-	XNA121
	1.3	Drive	-	-	Electric
	1.4	Operator type	-	-	Pedestrian
	1.5	Load capacity	-	kg	1200
	1.6	Service weight	Q	kg	6500
	1.7	Navigation	-	-	3D SLAM / QR Code
	1.8	Communication	-	-	Wi-Fi/5G
	1.9	Positioning accuracy	-	mm	±10
	1.10	Indoor / Outdoor	-	-	-
Battery parameters	2.1	Battery voltage / Nominal capacity	-	V/Ah	48/560
	2.2	Battery type	-	-	Li-ion battery
	2.3	Battery weight	-	kg	250
	2.4	Usage time	-	h	8-10
Size	3.1	Dimensions	l1/b1/h1	mm	3190/1540/4465
	3.2	Load centre distance	c	mm	600
	3.3	Load length	x	mm	213
	3.4	Wheelbases	y	mm	1665
	3.5	Fork vertical length	l2	mm	3200
	3.6	Fork dimensions	s/e/l	mm	40/100/180
	3.7	Distance between fork-arms	-	-	-
	3.8	Height with forks lowered	h13	mm	70
	3.9	Lifting height	h3	mm	8500
	3.10	Lateral reach distance	l4	mm	1300
	3.11	Outer width of forks	b5	mm	685
Other parameters	4.1	Forward distance	-	-	-
	4.2	Travel speed, laden/unladen	-	m/s	1/1
	4.3	Max. gradeability, laden/unladen	-	%	-
	4.4	Maximum floor level deviation	-	-	-
	4.5	Turning radius	Wa	mm	1989
Channel requirements	5.1	Aisle width for pallets 1000×1200 lengthways	Ast	mm	1740
	5.2	Aisle width for pallets 1000×1200 crossways	Ast	mm	2960
	5.3	Aisle width for one-sided loading/unloading (pallet: 1200 mm L × 1000 mm W)	Ast	mm	1740
Safety	6.1	Emergency stop button	-	-	Front / Two sides
	6.2	Voice and light	-	-	Voice / Outline Light
	6.3	Front protection	-	-	Laser treatment for correcting vision
	6.4	Rear protection	-	-	Fork Tip Optoelectronics + Mechanical Collision Protection
	6.5	Side protection	-	-	Laser
	6.6	Physical bumper	-	-	-
	6.7	Pallet in-place detection switch	-	-	Front bottom + Side bottom
	6.8	Charging power	-	-	-

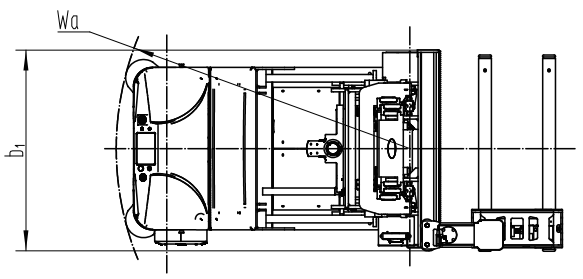
If there are improvements of technical parameters or configurations, no further notice will be given.
The diagram shown may contain non-standard configurations.

Product Line Diagram

XNA121



Side View



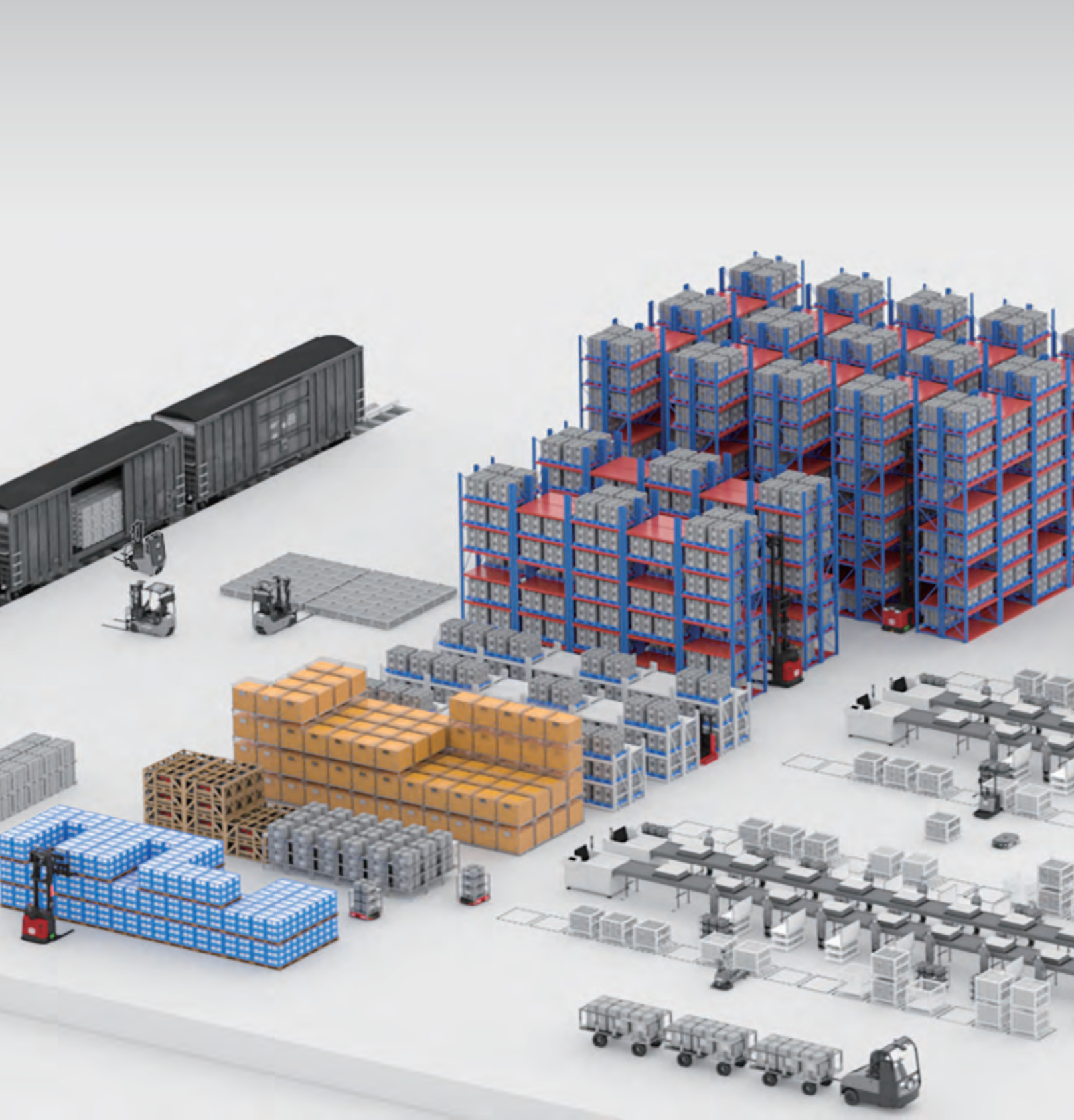
Top View

Option List

XNA121

Option List	7.1	Battery	●48V/560Ah
	7.2	Charger	●48V/200A External Charger
	7.3	Automatic charging station	-
	7.4	Warning light	●Turn light ●Warning light
	7.5	Front protection	●Dual laser
	7.6	Rear protection	●Fork tip anti-collision ●Laser at the base of the fork
	7.7	Interaction method	●Screen ○Buttons

Note ●Standard ○Optional -Inconformity



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