![logo] 华一德智能
HUAYIDE INTELLIGENT

INTELLIGENT STORAGE

智 能 储 存

安徽华一德智能储存设备有限公司
Anhui Hua Yide Intelligent Storage Equipment Co., Ltd.

专业服务

Professional Service
Rest Assured Entrustment

放心托付

HUAYIDE INTELLIGENT

SMART HANDLING MULTIPLIES BENEFITS

—— 智能科技·缔造价值 ——

CONTENTS 目 录

Project Planning
Intelligent Manufacturing
Intelligent Electrical Control
Computer Software Development
Engineering Project Management

智能项目规划、智能制造、智能电气控制、计算机软件开发、工程项目管理

公司秉承"专业服务，放心托付"理念，企业得到迅猛发展，并得到市场的认可。以科技为基础，以科学的方法和手段解决物流工程实际中的问题，不断创新，勇攀高峰。追求更高的科学技术水平和客户服务水平是公司发展方向和追求目标。

Adhering to the "professional service, rest assured entrustment" concept, we got rapidly development and received market recognition. Based on science and technology, using scientific methods to solve practical problems in logistics engineering, continuous innovation and improvement. Pursuing a higher level of science and technology and customer service are the company's development direction and goals.

安徽华一德智能储存设备有限公司坐落于安徽合肥滨湖科学城，专注于智能物流装备的开发和推广，集科研开发、生产制造、系统集成、市场营销及工程服务为一体，致力于为市场提供一流的具有国际竞争力的智能物流装备、产品和解决方案，业务已覆盖自动化、智能制造等领域。公司产品广泛应用于电力、汽车、化工、物流、公共事业、制造等行业。

Anhui Huayide Intelligent Storage Equipment Co., Ltd. (the promitive name Anhui Huarunde logictics equipment Co., Ltd, Establised in 2009) is located in Hefei Binhu Science City, Anhui Province. It focuses on the development and promotion of intelligent logistics equipment, integrating scientific research and development, manufacturing, system integration, marketing and engineering services, committed to providing world-class internationally competitive intelligent logistics equipment, products and solutions, covered automation and intelligent manufacturing. Our products are widely used in power, automotive, chemical, logistics, public utilities, manufacturing and other industries.

ABOUT US
关于我们
COMPANY PROFILE
企业简介

公司技术实力强劲，依托于安徽工程大学、中国科学技术大学研究机构和知名企业深度合作，在产品研发的过程中，吸收了大量先进的技术和理念，拥有智能物流装备全方位技术研发能力，在智能项目规划、智能制造、智能电气控制、计算机软件开发、工程项目管理领域有着极其深厚的造诣

We have strong technical, relying on the deep cooperation between Anhui Polytechnic University, research institute of University of Science and Technology of China and well-known enterprises. In the process of product research and development, it has absorbed a large number of advanced technologies and concepts,possesses comprehensive technical research and development capabilities of intelligent logistics equipment. We have extremely profound accomplishments project planning, intelligent manufacturing, intelligent electrical control, computer software development, and engineering project management .

ABOUT US
关于我们
OUR ABILITY
我们的能力

ABOUT US
关于我们
QUALITY CONTROL ABILITY
品质控制能力

我们拥有强大的专业设计研发团队，研发人员 50 余人。可以即时根据各行各业的物流方案特点，在力学理论和钢结构技术的基础上．为客户量身定做各种轻、中、重型货架和密集存储自动化系统，电动移动货架及各类工位器具等，并推荐专用物流仓储设备的选用方案。为客户全方位专业的进行整体物流及设备设计规划，让客户的仓储能力最大化．同时降低物流成本。

We have a strong professional R & D team with more than 50 people. According to the characteristics of logistics solutions in various industries, based on mechanical theory and steel structure technology, we can customize a variety of light, medium and heavy racking and dense storage automation systems, electric mobile racking and various station appliances. Etc., and recommend the selection of special logistics storage equipment. Providing customers with comprehensive and professional logistics and equipment design planning to maximize customer storage capacity and reduce logistics costs.

Five professional logistics equipment operation laboratories
我们拥有五大专业物流设备运行实验室

- 综合检测实验室
  Gengral lab
- 货架承载及抗震实验室
  Anti-seismic and load capacity
- 重型电动移动货架实验室
  Heavy-duty electric mobile racking
- 自动化仓库 AS/RS 实验室
  AS/RS Lab
- 全自动穿梭车货架试验室
  Shuttle racking System Testing

我们拥有：
货架材质检测的专业材力试验机、货架立柱承载试验机及横梁承载试验机。

We have：
professional shelf raw material strength testing machine , column load testing machines and beam load testing machines.

我们拥有：
整套货架表面涂层质量检测设备：划格试验机、杯突试验机、电子磁性测厚仪、光泽度测量仪，监雾试验机等。

We have：
a complete set of shelf surface coating quality testing equipment: cross-cut testing machine, cupping testing machine, electronic magnetic thickness gauge, gloss measuring instrument, salt spray testing machine, etc.

我们通过：
IS09001 质量体系认证、IS014001 环境体系认证、ISO18001 职业健康体系认证。经欧盟 CE 认证机构检测，通过了安全、环保等各项指标测定，获得欧盟认证机构颁发的 CE 认证证书，取得了进入欧洲联盟市场的销售通行证。

We have passed：
IS09001 quality system certification, IS014001 environmental system certification, ISO18001 occupational health system certification. Tested by the European research institute, we passed various indicators such as safety and environmental protection, obtained CE certification, and obtained a sales pass to enter the European market.

ABOUT US
关于我们

HONOR AND QUALIFICATION
荣誉与资质

安徽华一德智能储存设备有限公司凭借自身雄厚的实力与不懈的追求，为客户、行业、社会做出了积极的贡献，多次获得政府与行业的表彰和奖励。

Anhui huayide intelligent storage equipment Co., Ltd., relies on its strong strength and unremitting pursuit, has made positive contributions to customers, industry and society, and has won recognition and rewards from the government and industry many times.

我们取得 ISO9001 &ISO14001&CE 认证，并先后开发了 10 余项智能装备类相关知识产权，并获得了高新技术产品认证。

We have obtained ISO9001&ISO14001& CE certifications, and have successively developed more than 10 intellectual property-related intellectual property rights, and obtained high-tech products certification.

■ 中国电子商务物流优秀设备供应商
China e-commerce logistics excellent logistics equipment supplier

■ 冷链物流实用装备奖
Cold Chain Logistics Practical Equipment Award

■ 中国鞋服物流优秀设备供应商
China Outstanding Equipment Supplier of Shoes and Apparel Logistics

■ 技术与装备创新奖
Technology and Equipment Innovation Award

■ 高新技术产品认定
High-tech product identification

■ 2019 年数字化新能源锂电池生产最佳解决方案
The best solution for digital new energy lithium battery production in 2019

ABOUT US 关于我们
FACTORAY EQUIPMENT & FACILITIES
工厂设备

主要生产线有 | Main Production Lines:

■ 2 条货架钢层板生产线 ｜ 2 Steel Shelf Production Lines
■ 20 条立柱自动冲孔及轧流水线 ｜ 20 Automated Punching & Rolling Lines - UPRIGHT
■ 10 条横梁自动轧制流水线 ｜ 10 Automated Rolling Lines - Beam
■ 6 条表面处理自动静电喷涂生产线 ｜ 6 Pre-treatment& Automated Powder Coating Lines
■ 5 台机器人自动横梁焊接机 ｜ 5 Automated Welding Robot Stations
■ 2 条钢托盘生产流水线 ｜ 2 Steel Pallet Production Lines
■ 60 台二氧化碳焊机 ｜ 60 CO_2 Welding Machines
■ 50 台 , 套剪折冲设备 ｜ 50 Cutting,Bending and Punching Machines
■ 工位器具生产流水线 ｜ Work Apparatus Production Lines
■ 全套堆垛机制造数控加工中心 ｜ CNC machining center for complete stacker manufacturing

公司秉承"科学技术是第一生产力",在注重引进吸收国际先进技术的同时,致力于生产设备的不断更新、改进生产工艺及检测设备,生产规模日益扩大,产品质量稳步提高。

Adhering to the "science and technology is the primary productive force", the company has been focusing on introducing and absorbing international advanced technology, and is also focusing on the continuous updating of production equipment, improving the production process and testing equipment. The scale of production is expanding, and the quality of products is steadily improving.

華一德智能
HUAYIDE INTELLIGENT

ABOUT US
关于我们

COMPONENT ASSEMBLY
部件装配

AUTOMATED HIGH-DENSITY STORAGE SYSTEM
自动化密集存储系统

CARRIER AND SHUTTLE
子母穿梭车

母车换层机
Master shuttle elevator

垂直货物提升机
Vertical cargo hoist

母车轨道平台
Master shuttle
track platform

子母穿梭车
Carrier and shuttle

货物
goods

辊筒输送机
Roller conveyor

控制柜
Control cabinet

移动链条机
Transmission chain

防撞护柱
Post protector

顶升移载机
Lifting transfer
machine

链式输送机
Chain conveyor

穿梭式货架
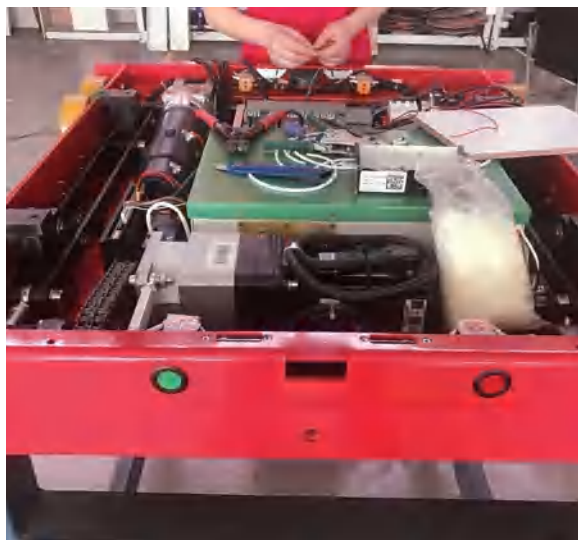Shuttle rack
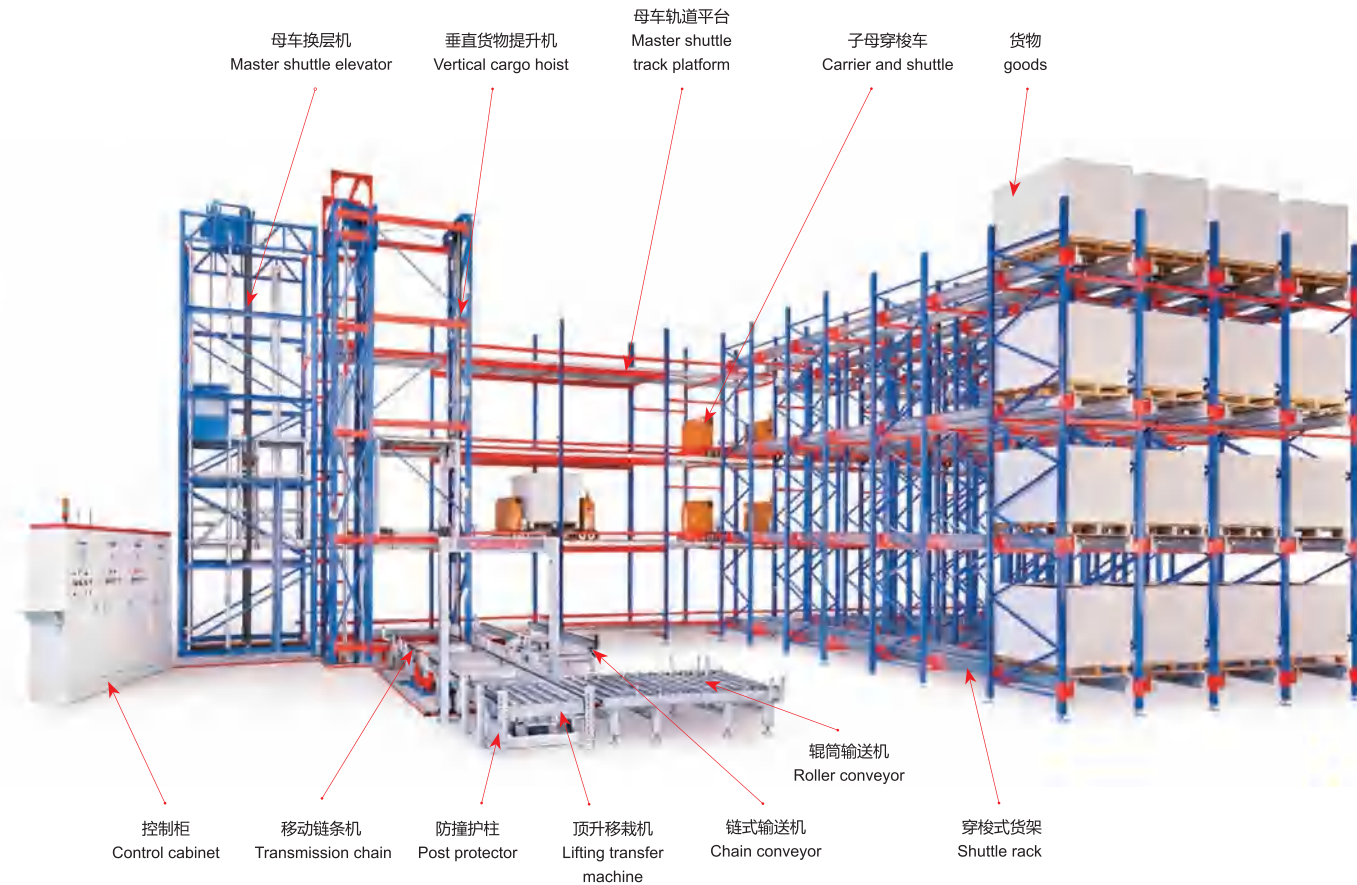
系 统 介 绍

全自动密集存储系统是由穿梭子母车、行走轨道、巷道货架、固定输送堆垛机、托盘输送系统、自动控制系统 (WCS)、无线控制系统 (ECS)、仓库管理软件 (WMS) 等组成。穿梭子母车是全自动密集存储系统的关键设备 . 它的运动可以实现货物在货架系统中两个方向的移动。

INTRODUCTION

The automatic dense storage system is composed of shuttle, guide rails, racking, fixed conveying stacker, pallet conveying systems, automatic control systems (WCS), wireless control systems (ECS), warehouse management software (WMS) and etc. . The shuttle is the key equipment of automatic dense storage system. Its movement can realize the movement of goods in two directions in the racking system.

■ 产品优势

1. 隐藏式无接触滑触线供电技术
2. 运行轨道专利技术
3. 全部采用国际名牌高效电机
4. 具有优良的加速性能和运行平稳性
5. 全球领先的自动无损充电技术
6. 换层时智能断电控制技术
7. 先进的平稳启动运行技术
8. 采用寿命超长的超级电容供电技术
9. 在线自动充电，运行无忧。

■ Product Advantages

1. Hidden jointless slide wires as power supply
2. Guide Rail Patented technology
3. High Performance Motor from International Well-known Brands
4. Excellent acceleration performance and operation stability
5. Global Leading automatic non-destructive charge-discharge technology
6. Intelligent uninterruptiable power control technology for layer transfer
7. Advanced smooth NO-OFF operation
8. Powered by leading super capacitor
9. Online automatic charging, without human operation.

■ 系统特点

1. 货架高度可达 30 米甚至更高，减少土地占用面积
2. 实现半自动穿梭式货架的完美升级，与生产，物流的完美对接，降低人力成本
3. 可实现与 ERP 系统数据无缝对接，实时智能的生产调度
4. 超高密度存储，最大化利用空间。
5. 仓储布局组合方式灵活，可实现非连续楼层、多区域的互通布局

■ Characteristics

1. Shelf height can reach 30 meters or higher, reducing land occupation area
2. Realize the perfect upgrade of semi-automatic shuttle racks, perfect docking with production and logistics, reducing labor costs
3. Seamless data integration with ERP system and real-time intelligent production scheduling
4. Ultra-high density storage to maximize the use of space.
5. The storage layout is flexible, and it can realize non-contiguous floors and multi-area interworking layout.

SYSTEM CASE 系统案例
CARRIER AND SHUTTLE SYSTEM
子母穿梭车系统

- 货架高度 6.3 米 | Shelf height 6.3 meters
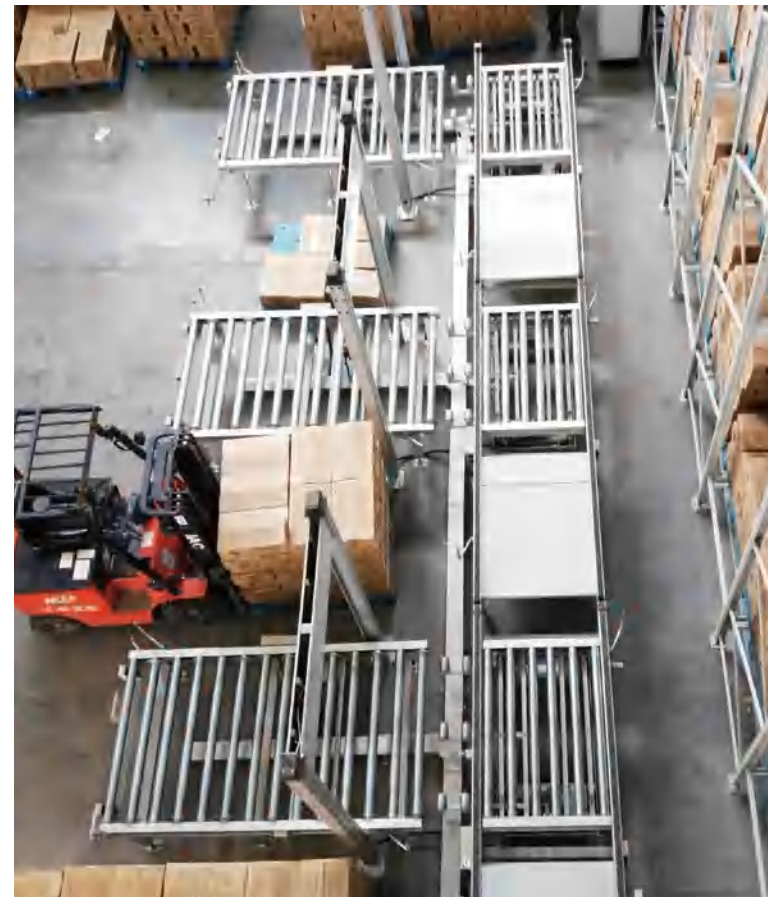- 三层存货 | three layers storage
- 共 4257 货位 | total 4,257 pallet location
- 3 套子母车系统 | 3 sets of carrier & shuttle system

- 货架高度 12.5 米 | Shelf height 12.5 meters
- 五层存货 | five layers storage
- 共 25190 货位 | total 25,190 pallet location
- 10 套子母车系统 | 10 sets of carrier & shuttle system

AUTOMATED HIGH-DENSITY STORAGE SYSTEM

自动化密集存储系统

FOUR-WAY SHUTTLE AUTOMATION
四向穿梭车自动化

1. 四向行驶，无障碍的自由穿梭技术，可到达仓库任意位置
2. 全部采用国际名牌高效电机
3. 具有优良的加速性能和运行平稳性
4. 全球领先的自动无损充电技术
5. 先进的平稳启动运行技术
6. 在线充电，无需人工干预和值守，运行无忧。

■ Product Advantages

1. Four-direction driving, free shuttle technology without obstacles, can reach any position in the warehouse
2. All adopt international famous brand high-efficiency motors
3. Excellent acceleration performance and smooth running
4. Global leading automatic non-destructive charging technology
5. Advanced smooth NO-OFF operation
6. On-line charging without human intervention, smooth operation

Reduce warehouse land by more than 50%

减少仓库用地超过 50%

系 统 介 绍

　　四向穿梭车是一款既能实现纵向行走亦能实现横向行走的智能搬运设备。灵活性高，可任意变换作业巷道，并通过增减穿梭车的数量来调节系统能力，必要时可通过组建作业车队的调度方式，来应变系统的峰值，解决出入作业的瓶颈。

　　四向穿梭车可以相互替换，当某台穿梭车或提升机出现故障时，可通过调度系统调度其它穿梭车或提升机，继续完成作业，系统能力不受影响。四向穿梭车，既适合低流量、高密度的存储，也适合高流量、高密度的存储，它可以实现效率、成本、资源的最大化。

INTRODUCTION

Four-way shuttle is an intelligent handling device that can achieve both vertical and horizontal walking. It has high flexibility, can change the working lanes arbitrarily, and adjust the storage capacity by increasing or decreasing the number of shuttles. If necessary, the peak value of the system can be adjusted by setting up a dispatching method of the operating fleet to solve the bottleneck of the in and out operation. Four-way shuttle can be replaced with each other. When a certain shuttle or elevator fails, other shuttles or elevators can be dispatched through the dispatching system to continue to complete the operation, and the storage capacity is not affected. The four-way shuttle is suitable for both low-flow and high-density storage and high-flow and high-density storage. It can maximize efficiency, cost, and resources.

■ 系统特点

1. 货架高度可达 10 米甚至更高，减少土地占用面积
2. 减少仓库用地超过 50%，降低人力成本超过 30%
3. 可实现与 ERP 系统数据无缝对接，实时智能的生产调度
4. 车体重量轻节能高效
5. 仓储布局组合方式灵活，可实现非连续楼层、多区域的互通布局

■ Characteristics

1. Shelf height can reach 10 meters or higher, reducing land occupation area
2. Reduce warehouse land by more than 50% and reduce labor costs by more than 30%
3. Seamless data integration with ERP system and real-time intelligent production scheduling
4. Light weight, energy saving and high efficiency
5. Flexible storage layout combination method, can realize non-contiguous floors and multi-area interworking layout

SYSTEM CASE 系统案例
FOUR-WAY SHUTTLE CASE
四向穿梭车

- 货架高度 8.5 米 | Shelf height 8.5 meters
- 四层存货 | four layers storage
- 共 832 货位 | total 832 pallet location
- 2 台四向穿梭车 | 2 four-way shuttles

- 货架高度 5 米 | Shelf height 5 meters
- 三层存货 | three layers storage
- 共 3257 货位 | total 3257 pallet location
- 6 台四向穿梭车 | 6 four-way shuttles

AUTOMATED HIGH-DENSITY STORAGE SYSTEM

自动化密集存储系统

STACKER CRANE SYSTEM
巷道堆垛机自动化

产品优势

1. 按项目生产定制，轻、重型、单双深；品类齐全
2. 国内欧式结构设计的代表厂商，堆垛机性能稳定，确保长期可靠运行
3. 深入了解客户业务需求，注重系统优化设计。

Product Advantages

1. Customized according to project production, light, heavy, single and double deep; complete categories
2. Representative manufacturer of domestic European structural design, stable performance of stacker, ensuring long-term reliable operation
3. Deepen understanding of customer business needs, focusing on optimization design

系 统 介 绍

采用立体货架和堆垛机等设备，使堆垛机在立体货架之间的巷道沿水平和竖直方向行走，根据计算机的指令将以托盘承载的货物通过电机驱动的货叉存入指定的货位，或从指定货位将货物取出。

INTRODUCTION

The stacker operates in the horizontal and vertical directions during the warehouse racking by racking and stacker equipement. According to the instructions of the computer, the goods carried by the pallets are stored in the designated goods by the motor-driven fork. Or remove the goods from the designated pallet location.

系统特点

1. 货架高度可达 40 米甚至更高，减少土地占用面积
2. 自动无人化作业，降低人力成本
3. 与 ERP 系统可实现数据无缝对接与实时智能的生产调度
4. 消灭仓库内的混乱状况，降低管理难度

Characteristics

1. Shelf height can reach 40 meters or higher, reducing land occupation area
2. Automatic unmanned operation, reducing labor costs
3. Seamless data integration with ERP system and real-time intelligent production scheduling
4. Eliminate the chaos in the warehouse and reduce the difficulty of management

SYSTEM CASE 系统案例
STACKER CRANE SYSTEM
巷道堆垛机自动化

■ 22.7 米高单深位巷道堆垛机立库，出入库共两层作业模式。

■ 运用滑板托盘集装搬运包装货物，将滑板作为底板，货物放置与滑板上，利用带有推拉器的叉车夹住滑板的翼板，进行带板运输，卸货时直接以滑板为单位，叉车夹住滑板的翼板将整托货物取出。

■ 入库端送设备直接与生产车间码垛机器人系统对接，码垛完成后直接入库，省去了人工叉车作业模式的繁琐。
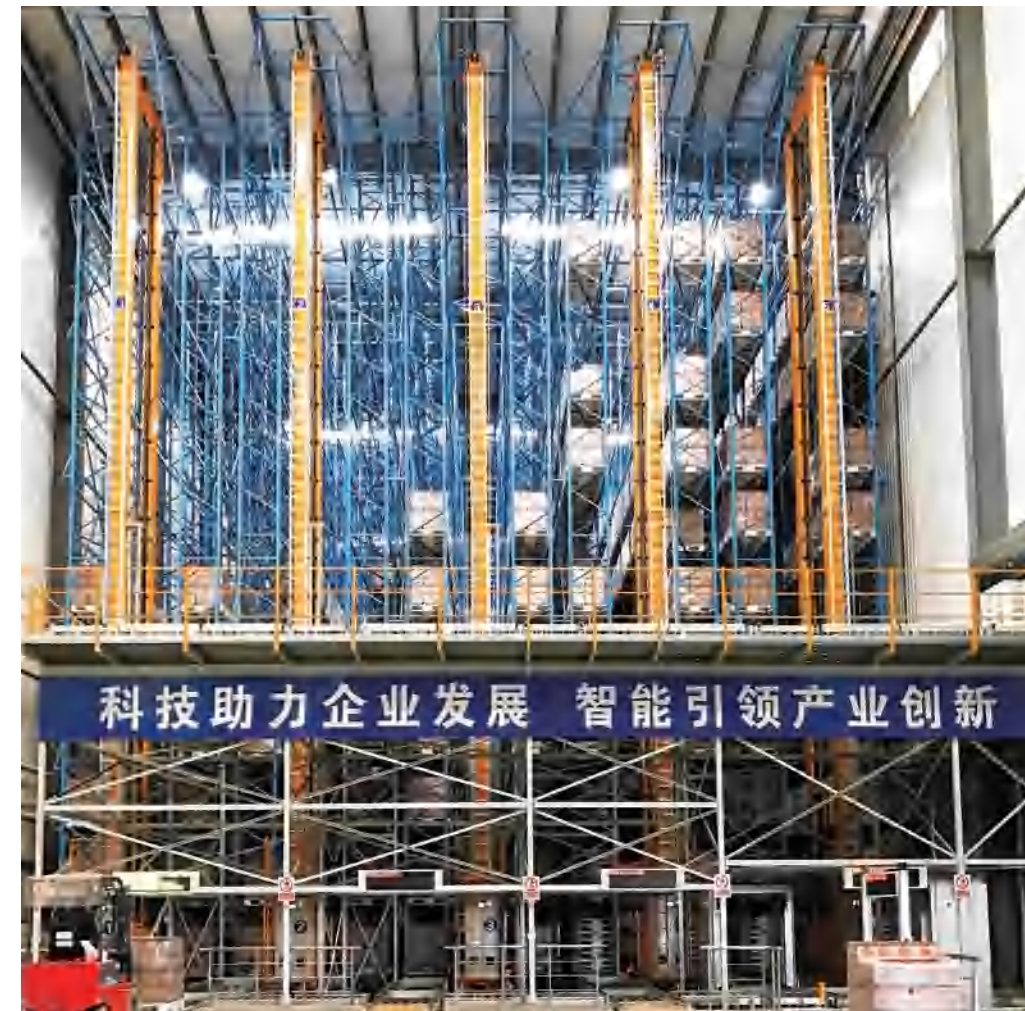
■ 22.7 meter height single deep stacker crane AS/RS, in & out two layers operation mode;

■ By using paper pallet consolidate, handling and packing goods. Take the paper pallet as the bottom to put goods on, through forklift clip the wing plate with push and pull device, transport the goods with pallet. When doing the unloading is the same, forklift clip the wing plate to take out all the goods.

■ Input conveying equipment docking with stacking robot system, all the goods will be sent into ASRS after stacking. It eliminates the cumbersome mode of manual forklift operation.
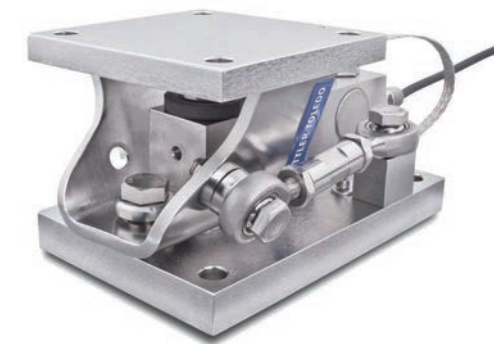
■ 15.3 米高，单 & 双深巷道式堆垛机立体库

■ 3~6，9~12、13~15 巷道
采用双深度堆垛机
载重 1 吨每托盘位

■ 1~2/7~8 巷道
采用单深度重型堆垛机
载重 3 吨每托盘位
因 1~2/7~8 巷道存取频率不高，使用堆垛机转轨技术
1~2/7~8 巷道共用一台堆垛机作业，节约用户建造成本

■ 15.3 meters high, single & double deep laneway stacker

■ 3th ~ 6th, 9th ~ 12th, 13th ~ 15th lanes
use double depth stacker
loading 1000kg per pallet

■ 1th ~ 2th, 7 th ~ 8th lanes
use same single-depth heavy-duty stacker
with a loading of 3 tons per pallet
also the picking frequency of 1th ~ 2th, 7th ~ 8th roadway is not high
using stacker turning technology, saving users' construction costs

AUTOMATED HIGH-DENSITY STORAGE SYSTEM

自动化密集存储系统

STACKER CRANE & SHUTTLE SYSTEM
巷道堆垛机加穿梭车自动化
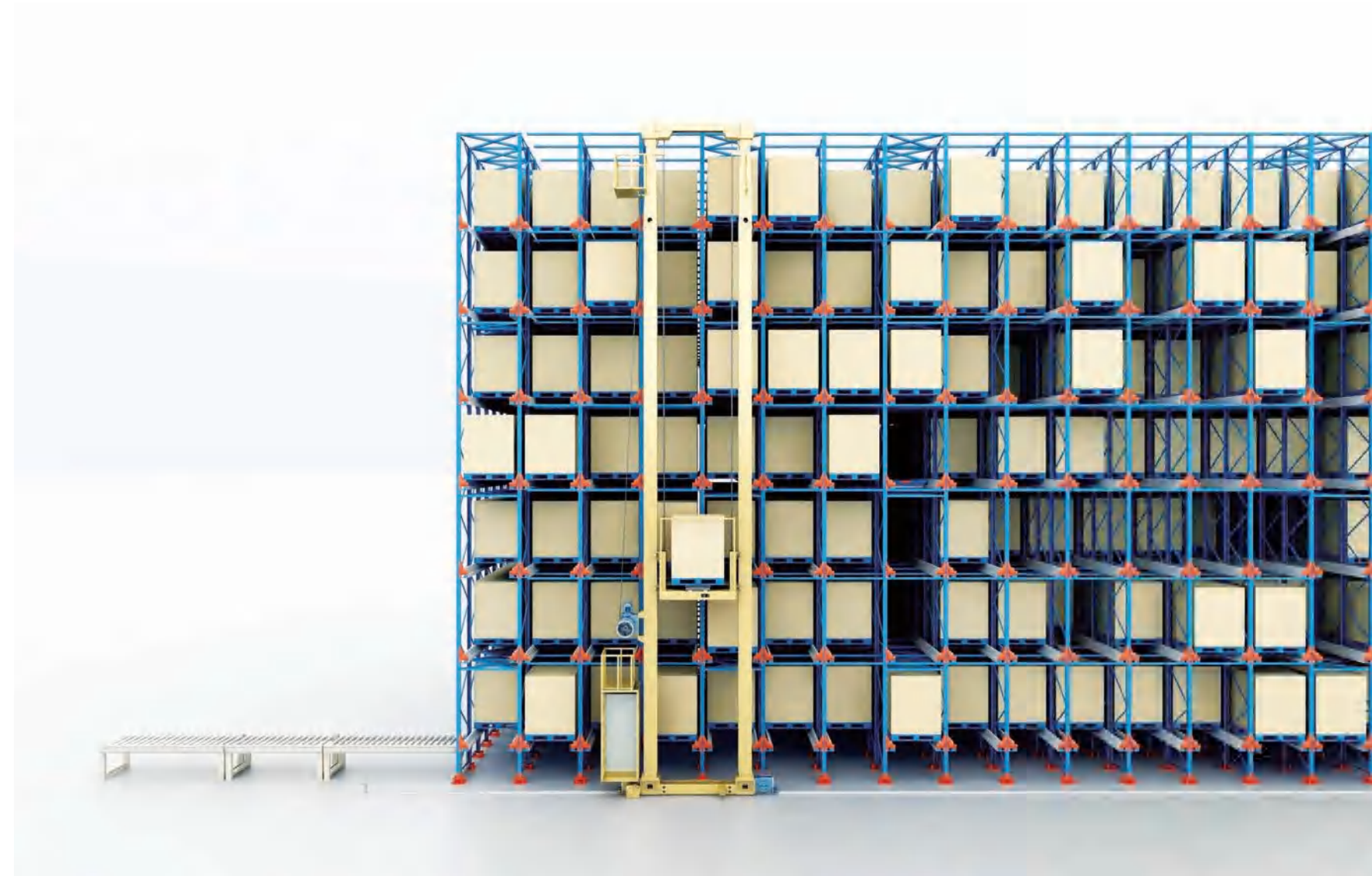
系 统 介 绍

采用立体货架和堆垛机、穿梭车等设备，由堆垛机完成纵向和垂直方向的货物搬运，穿梭车完成货架巷道内横向的货物搬运。

INTRODUCTION

Composed by warehouse racking, stacker , shuttle and other equipment, the stacker completes the portrait and vertical cargo transportation, and the shuttles complete the horizontal cargo transportation in the racking lane.

■ **产品优势**

1. 可比普通穿梭式布置更多储位，提高仓库利用率；
2. 全自动作业提高系统可靠性和安全性；
3. 设备利用率均衡，降低仓库投资运营总成本。

■ **Product Advantages**

1. It can arrange more storage spaces than ordinary shuttles to improve warehouse utilization;
2. Automatic operation improves system reliability and safety;
3. Equilibrium equipment utilization, reducing the total cost of warehouse investment and operation.

■ **系统特点**

1. 货架高度可达 20 米甚至更高，减少土地占用面积
2. 自动无人化作业，降低人力成本
3. 可实现与 ERP 系统数据无缝对接，实时智能的生产调度
4. 消灭仓库内的混乱状况，降低管理难度
5. 堆垛机巷道数量减少，货架巷道即可存储又可搬运，实现高密度存储。

■ **Characteristics**

1. Shelf height can reach 20 meters or higher, reducing land occupation area
2. Automatic unmanned operation, reducing labor costs
3. Seamless data integration with ERP system and real-time intelligent production scheduling
4. liminate the chaos in the warehouse and reduce the difficulty of management
5. The number of stacker lanes is reduced, and the rack lanes can be stored and transported to achieve high-density storage.

华一德智能
HUAYIDE INTELLIGENT

SYSTEM CASE 系统案例

STACKER CRANE
& SHUTTLE SYSTEM
巷道堆垛机加穿梭车自动化

单台巷道堆垛机配合两台穿梭车实现出入库功能，库前端各有一台拆叠盘机，可实现出入库空托盘循环供应。

Single lane stacker cooperates with two shuttles to realize the warehouse access function. There is a depalletizer in the front of the warehouse, which can realize the circulating supply of empty pallets in the warehouse.

- 货架高度 14.4 米 | Shelf height 14.4 meters
- 6 层导轨存货 | 6 layers guide rail storage
- 每货位载重 1100kg | loading 1100kg per pallet
- 1584 托盘位 | total 1584 pallet location

两台巷道堆垛机配合两台穿梭车实现出入库功能。

Two lane stackers cooperate with two shuttles to realize the warehouse access function.

- 货架高度 5.5 米 | Shelf height 5.5 meters
- 2 层导轨存货 | two layers guide rail storage
- 每货位载 1200kg | loading 1200kg per pallet
- 3190 托盘位 | total 3190 pallet location

AUTOMATED HIGH-DENSITY STORAGE DEVICES
密集存储自动化设备
CARRIER & SHUTTLE
穿梭子母车

■ 性能及优势

1. 隐藏式无接触滑触线供电技术
2. 运行轨道专利技术
3. 全部采用国际名牌高效电机
4. 具有优良的加速性能和运行平稳性
5. 全球领先的自动无损充电技术
6. 换层时智能断电控制技术
7. 先进的平稳启动运行技术
8. 采用寿命超长的超级电容供电技术
9. 在线自动充电，运行无忧

■ Performance and advantages

1. Hidden contactless sliding contact line power supply technology
2. Patented track technology
3. High-efficiency motors from international famous brands
4. Excellent acceleration performance and smooth running
5. World-leading automatic non-destructive charging technology
6. Intelligent power-off control technology when changing layers
7. Advanced smoothON-OFF technology
8. Using ultra-long life super capacitor power supply technology
9. Online automatic charging, worry-free operation.

技术参数表 | Technical specification

穿梭母车形式 Type of the carrier		非换层型 Non-layer-changing model		换层型 Layer change model	
穿梭母车型号 carrier Model		NDCSZS		NDCSZM	
母车供电方式 carrier power supply model		滑触线供电 Sliding contact line power	电池供电 Powered by battery	滑触线供电 Sliding contact line power	电池供电 Powered by battery
承载重量 kg Carrying weight		1500 ≤	1500 ≤	1500 ≤	1500 ≤
适用托盘规格（托盘长度 mm） Applicable pallet size(Pallet length mm)		1100~1300	1100~1300	1100~1300	1100~1300
运行速度 Running speed	母车空载 m/s carrier unloaded m/s	2.5 ≤	1.5 ≤	2.5 ≤	1.5 ≤
	母车满载 m/s carrier fully loaded m/s	2.0 ≤	1.0 ≤	2.0 ≤	1.0 ≤
	子车空载 m/s shuttle unloaded m/s	1.0 ≤	0.9 ≤	1.0 ≤	0.9 ≤
	子车满载 m/s shuttle fully loaded m/s	0.6 ≤	0.5 ≤	0.6 ≤	0.5 ≤
电机功率 motor power	母车驱动电机 carrier drive motor	2.2 KW (AC380V)	1.5 KW (DC48V)	2.2 KW (AC380V)	1.5 KW (DC48V)
	母车输送电机 carrier chain motor	0.4 KW (AC380V)	0.4 KW (DC48V)	0.4 KW (AC380V)	0.4 KW (DC48V)
	子车驱动电机 shuttle drive motor	0.4 KW	0.4 KW	0.4 KW	0.4 KW
	子车顶升电机 shuttle jacking motor	0.37 KW	0.37 KW	0.37 KW	0.37 KW
母车电池 carrier battery	电池容量 battery capacity	-	80 Ah	-	80 Ah
	电池续航时间 battery full battery life	-	8H	-	8H
	充电时间 Charging time	-	8H	-	8H
子车电池 shuttle battery	电池容量 battery capacity	超级电容器 Super capacitor	56AH (DC24V)	超级电容器 Super capacitor	56AH (DC24V)
子母车充电方式 carrier & shuttle charging mode		在线 Online	在线 Online	在线 Online	在线 Online
控制方式 control method		手动、自动、在线 Manual, Automatic, Online	手动、自动、在线 Manual, Automatic, Online	手动、自动、在线 Manual, Automatic, Online	手动、自动、在线 Manual, Automatic, Online

注：子母车均可选配冷库型号（Note:Carrier & shuttle optional cold storage model）

AUTOMATED HIGH-DENSITY STORAGE DEVICES
密集存储自动化设备
FOUR-WAY SHUTTLE CART
四向穿梭车

智能四向穿梭车是一种高密度仓储货架中的自动化搬运设备，可以在横向和纵向轨道上运行，货物的水平移动和存取只由一台穿梭车来完成，配合提升机的换层，系统自动化程度大大提高，是最新一代的智能搬运设备，为工业 4.0 提供智能高效的货物输送。

The intelligent four-way shuttle is an automatic handling equipment in high-density storage shelves, which can run on horizontal and vertical tracks. The horizontal movement and storage of goods are only completed by one shuttle. In cooperation with the layer change of the elevator, The degree of system automation is greatly improved, and it is the latest generation of intelligent handling equipment that provides intelligent and efficient cargo transportation for Industry 4.0.

■ 性能及优势

1. 可以四向行驶，跨巷道高效、灵活作业，不受空间限制，充分利用空间；
2. 通过无线网与控制系统连接，与提升机配合可以去到任意货位；
3. 四向穿梭车系统模块化、标准化，实现离散式搬运；
4. 布局柔性高、存储密度高；
5. 配合使用专利轨道，系统造价低；

■ Performance and advantages

1. Can drive in four directions, operate efficiently and flexibly across the roadway, without space restrictions, make full use of space;
2. Connect to the control system through a wireless network, and can go to any cargo location in cooperation with the hoist;
3. The four-way shuttle cart system is modular and standardized to realize discrete handling;
4. Flexible layout and high storage density;
5. Cooperate with patented track, the system cost is low;

技术参数表 | Technical specification

车型 Model	载重 Load	运行速度 Running speed	托盘尺寸 (mm) pallet size(mm)	工作温度 Operating temperature	供电 powered by	电池性能 Battery performance	设备自重 Equipment weight
标准型 Standard model	Max1.5T	1.4m/s	宽度 width：1200-1600 深度 depth：800-1200	0 ~ 45℃	72V/32AH	磷酸铁锂 Lithium iron phosphate battery; 充电 Charge2H 续航 Endurance7-9H	350kg
加大型 Increase model	Max2T	1.2m/s	宽度 width：2200 深度 depth：2200 支持非标定制	0 ~ 45℃	48V/40AH	磷酸铁锂 Lithium iron phosphate battery; 充电 Charge2-3H 续航 Endurance6-8H	580kg
冷库型 Cold storage model	Max1.5T	1.0m/s	宽度 width：1200-1600 深度 depth：800-1200	-25℃ ~ 0℃	72V/35AH	磷酸铁锂 Lithium iron phosphate battery; 充电 Charge2-3H 续航 Endurance5-6H	450kg
	Max1.2T	1.2m/s					

AUTOMATED HIGH-DENSITY STORAGE DEVICES
密集存储自动化设备

STACKER CRANE
有轨巷道堆垛机

有轨巷道起重机 (简称堆垛机) 是自动化立体仓库 (AS/RS) 中重要的堆垛设备。它主要由机体、载货台、行走机构、起升机构、货架机构及电气控制装置等组成。能够在自动化立体仓库巷道中来回穿穿梭行驶，实现三轴运动，将货物从巷道口自动搬运到高层货架的货位中或者从高层货架的货位中搬运货物到巷道口。

Railway crane (stacker crane) is an important stacking equipment in AS / RS. It is mainly composed of a body, a loading platform, a walking mechanism, a lifting mechanism, a shelf mechanism and an electrical control device. It can shuttle back and forth in the lane of the automated three-dimensional warehouse to realize three-axis movement, and automatically transfer the goods from the laneway to the space of the high-level shelf or from the space of the high-level shelf to the laneway.

■ 性能及优势

1. 结构紧凑，强度高 . 钢性好
2. 进口电机及电气元件 . 性能稳定可靠
3. 人机界面，操作简便：模块式结构，网络通讯，自动高效
4. 连锁保护，自动报警，安全第一
5. 国际领先的货叉机构技术，运行高效平稳
6. 供电及信号传输电缆跟踪运行机构.美观大方，安全防缠绕

■ Performance and advantages

1. Compact structure and high strength. Good rigidity
2. Imported motors and electrical components. Stable and reliable performance
3. Human-machine interface, easy to operate: modular structure, network communication, automatic and efficient
4. Chain protection, automatic alarm, safety first
5. International leading fork mechanism technology, efficient and stable operation
6. Power supply and signal transmission cable tracking operation mechanism. Beautiful and generous, safe and anti-winding

技术参数表 | Technical specification

序号 No.	名称 / Name	单位 / Unit	规格 / specification
1	整机长度 / Overall length	mm	4500
2	行走轮直径 / Moig- wheel diamete	mm	480
3	卷扬桶直径 / Winding barrel diameter	mm	450
4	行走最大速度 / Max, Travelling speed	m/s	2.67
5	提升最大速度 / Max. Lifting speed	m/s	0.5
6	工作噪声 / Working noise	dB(A)	84
7	地轨连接方式 / Ground guide rail connection mode	-	榫头连接
8	吊兰导向方式 / Lifting basket guidance mode	-	电梯专用 T127 导轨 / T127 dedicated guide rail for lift
9	天轨导向方式 / Top rail guidance mode	-	电梯专用 T90 导轨 / T90 dedicated quide rail for lift
10	断绳保护装置 / Rope- -breaking protection device	-	瞬时安全钳 / Instantaneous safety gear

AUTOMATED HIGH-DENSITY STORAGE DEVICES
密集存储自动化设备

SHUTTLE CART
穿 梭 车

■ 性能及优势

1. 高性能锂电池充放电技术。
2. 高性能进口电机，专有顶升技术
3. 采用选 17 只进口光电的定位技术
4. 具有优良的加速性能和运行平稳性
5. 全球领先的叉车防撞专利技术
6. 全方位的红外防撞技术
7. 先进的平稳启停运行技术

■ Performance and advantages

1. High-performance lithium battery charging and discharging technology
2. High-performance imported motor, proprietary jacking technology
3. Using 17 positioning technologies of imported photo-electric
4. Excellent acceleration performance and smooth running
5. The world's leading patented anti-collision technology for forklifts
6. A full range of infrared anti-collision technology
7. Advanced smoothON-OFF technology

技术参数表 | Technical specification

穿梭车型号 shuttle Model		NDCSZS101012	NDCSZS101112	NDCSZS101212
供电方式 power supply model		电池供电 Powered by battery	电池供电 Powered by battery	电池供电 Powered by battery
车体尺寸 (深度 / 宽度 mm) Body size(depth/width mm)		D1050/W953	D1150/W953	D1250/W953
适用托盘规格 (托盘深度 mm) Applicable pallet size(Pallet depth mm)		1000	1100	1200
适用托盘规格 (托盘宽度 mm) Applicable pallet size(Pallet width mm)		1100~1300	1100~1300	1100~1300
承载重量 kg Carrying weight kg		1500 ≤	1500 ≤	1500 ≤
运行速度 Running speed	空载 m/s unloaded m/s	1.0 ≤	1.0 ≤	1.0 ≤
	满载 m/s fully loaded m/s	0.8 ≤	0.8 ≤	0.6 ≤
电机功率 motor power	驱动电机 shuttle drive motor	0.4KW	0.4KW	0.4KW
	顶升电机 shuttle jacking motor	0.37 KW	0.37 KW	0.37 KW
电池 battery	电池规格 Battery specifications	24V56Ah	24V56Ah	24V56Ah
	电池续航时间 battery full battery life	8H	8H	8H
	充电时间 Charging time	6H	6H	6H
	电池寿命 Battery Life	最少 1000 次充电循环 More than 1000 charge cycles	最少 1000 次充电循环 More than 1000 charge cycles	最少 1000 次充电循环 More than 1000 chargecycles
遥控器 remote control	控制距离 Control distance	100 m ≤	100m ≤	100m ≤
	供电方式 power supply model	电池供电 Powered by battery	电池供电 Powered by battery	电池供电 Powered by battery
	工作温度 Operating temperature	45~-30 ℃	45~-30 ℃	45~-30 ℃
	防护 Protection	IP65	IP65	IP65

注：可选配冷库型号（Note:Optional cold storage model)

AUTOMATED HIGH-DENSITY STORAGE DEVICES

密集存储自动化设备

PALLET VERTICAL HOIST
托盘垂直提升机

固定式输送堆垛机是全自动密集存储的关键设备。它实现货物、子母车、四向车在系统中上下移动。它是由机体、载货合、输送机、钢绳曳引动力系统，配重机构及控制系统组成。与总控系统实现无缝对接。

Vertical Hoist is the key equipment for fully automatic dense storage. It realizes the goods,carrier & shuttle , four-way shuttle move up and down in the system.It is composed of a body, a cargo loader, a conveyor, a steel rope traction power system, a counterweight system and a control system. It realizes seamless docking with the main control system.

■ 性能及优势

1. 全系列采用无齿轮永磁同步曳引驱动，高效节能。
2. 高速提升的载货合可实现每小时进出托盘货物 60 托。
3. 载货合内置输送机与穿梭车和地面输送系统实现高速平稳对接

■ Performance and advantages

1. The entire series is driven by gearless permanent magnet synchronous traction machine, which is highly efficient and energy saving.
2. High-speed lifting of cargo can achieve 60 pallets per hour in and out of the pallet.
3. The cargo loader conveyors achieve high-speed smooth running with Carrier & shuttle and ground transportation systems

技术参数表 ｜ Technical specification

序号 No.	名称 / Name	单位 / Unit	规格 / specification
1	整机长度 / Overall length	mm	1700
2	整机宽度 / Overall width	mm	2920
3	链条机长度 / Chain machine length	mm	1480
4	链条机速度 / Chain machine speed	m/s	0.02
5	提升最大速度 / Max. Lifting speed	m/s	1
6	工作噪声 / Working noise	dB(A)	70
7	吊兰导向方式 / Lifting basket guidance mode	-	电梯专用 T90 导轨 / T90 dedicated quide rail for lift

PALLET CONVEYOR SYSTEM

托盘输送系统

顶升移栽机
conveyor load transfer

环形穿梭车
Circle line shuttle

辊筒输送机
Roller conveyor

链式输送机
Chain conveyor

直线摆渡车
Straight line shuttle cart

在线托盘整理机
On-line pallet tider

固定托盘整理机
Fixed pallet finishing machine

移动输送机
Mobile conveyor

BOX CONVEYOR & SORTING SYSTEM
箱式输送分拣系统

HUAYIDE INTELLIGENT 华一德智能

VERTICAL CONVEYOR
垂直连续输送

箱式垂直输送主要包括连续式提升机和螺旋提升机，实现纸箱、料箱在各楼层间的流转。

The vertical conveying mainly includes continuous elevator and spiral hoist to realize the circulation of cartons and boxes among the floors.

提升高度 Lift Height	3 ~ 7m
载　重 Loading Capacity	< 45kg

亦可根据客户需求定制
Customized is available

CROSS-BELT SORTER
交叉带分拣机

交叉带分拣系统主要由供件、分拣主机、下件及控制系统四个部分组成，在控制系统的协调控制下实现物件从供件系统导入分拣主机进行分拣，由下件系统完成物件物理位置的分类存放，从而达到物件的分拣功能。

The cross-strip sorting system is composed of four parts: the supply, the sorting host, the lower part and the control system. Under the coordinated control of the control system, the object is imported from the supply system to the sorting host for sorting, and the physical location of the object is classified and stored by the lower part system, thus achieving the sorting function.
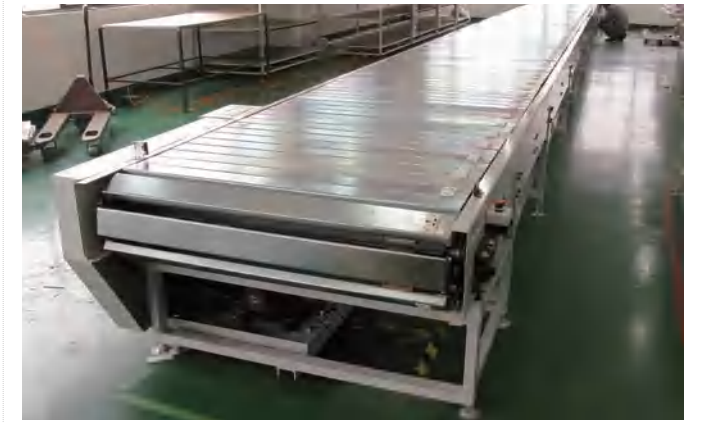
SLIDER SORTING EQUIPMENT
滑块分拣设备

滑块式分拣系统由链板式输送机和具有独特形状的滑块在链板间左右滑动进行商品分拣的推块等组成。

The slider type sorting system is composed of a chain plate conveyor and a push block with a unique shape sliding between the chain plates for commodity sorting.

CHAIN PLATE CONVEYOR
板链式输送

链板流水线是一种以不锈钢链板或者塑料链板为输送载体的输送流水线，在生产中主要用于承担加工件的输送。

Chain plate assembly line is a kind of transportation line with stainless steel or plastic chain plate as the carrier. It is mainly used to undertake the transportation of processed parts in production.

BELT CONVEYOR
皮带输送

可实现纸箱、料箱、塑料袋、细料等各种物料的连续式输送，并适用于转弯、爬坡、定位等多种场合。

It can realize the continuous conveying of cartons, boxes, plastic bags, bunches and other materials, also is suitable for turning, climbing, positioning and other occasions.

LINE SHAFT DIVER
斜导轮式分拣机

转动着的斜导轮，在平行排列的主窄幅皮带间隙中浮上、下降时，达到商品的分流目的 最大分拣效率：3000 件 / 小时

The maximum sorting efficiency is 3000 pieces per hour when the rotating inclined guide wheel floats up and down in the main narrow belt gap of parallel arrangement.

ROLLER CONVEYOR
滚筒输送

可实现纸箱、料箱等规整物料的连续式输送，并适用于转弯、移栽等场合。

It can realize continuous conveying of cartons, boxes and other regular materials, and is suitable for turning and transplanting.

NON-POWER CONVEYOR
无动力式滚筒输送

适用于各类箱，包，托盘等件货的输送，散料、小件物品或不规则物品需要放在托盘或周转箱内输送。

Apply for all kinds of cartons, bags, pallet transportation. Bulk, small items need to be transported inside the pallet or turnover box.

SOFTWARE SYSTEM
软件系统(WMS / WCS / RFS / PLC 总控)

软件系统概述

　　华一德自动化软件由设备控制系统（WCS）和信息管理系统（WMS）组成。华一德拥有专业、全面的软硬件人才团队，并与多家高校达成了人才培养和输送协议。华一德自动化软件具有高集成、智能化、实用性、可靠性、安全性、开放性等特点，支持多环境运行、多系统对接、多行业支持、多作业并行，实现安全、高效、稳定、可持续的多方位的保障。华一德自动化软件可与市面所有的主流 ERP、MES 系统进行无缝对接，实现企业无纸化、智能化、高效率管理。

OVERVIEW OF SOFTWARE

Huayide Automation Software consists of device control system (WCS) and information management system (WMS). Huayide has a professional and comprehensive software and hardware talent team, and has reached a talent training and transportation agreement with many universities. Huayide automation software has the characteristics of high integration, intelligence, practicability, reliability, security, openness and so on. It supports multi-environment operation, multi-system docking, multi-industry support, multi-job parallelism, and achieve safe, efficient, stable and sustainable multi-faceted protection. Huayide automation software can seamlessly interface with all mainstream ERP and MES systems in the market, realizing paperless, intelligent and efficient management of enterprises.

WCS 系统

　　仓储设备控制系统介于信息管理系统和仓储设备之间，作为仓储作业管理的神经中枢，将企业业务层的逻辑转换成具体的设备动作，并传达给相关的设备。WCS 采用可视化的操作界面，将库内的货位、设备模拟成具体的图形，直观的显示库内设备的运行情况。同时，WCS 还会实时跟踪指令和设备运行情况，为系统指令选择最优路径，优化作业顺序，使设备的高效、稳定、安全地运行。另外，WCS 自成一家，在独自运行的基础上，可以与第三方的设备、软件进行对接，实现多渠道、多业务、多设备的同时运行。

WCS SYSTEM

The warehouse equipment control system is located between the information management system and the warehouse equipment. As the nerve center of the warehouse operation management, the logic of the enterprise business layer is converted into specific equipment actions and transmitted to the relevant equipment. WCS uses a visualized operation interface to simulate the location and equipment in the warehouse into specific graphics to visually display the operation of the equipment in the warehouse. At the same time, WCS will track the operation of instructions and equipment in real time, select the optimal path for system instructions, optimize the operation sequence, and make the equipment run efficiently, stably and safely. In addition, WCS is a self-contained unit, which can interface with third-party equipment and software on the basis of its own operation so as to realize simultaneous operation of multi - channel, multi-service and multi - equipment.
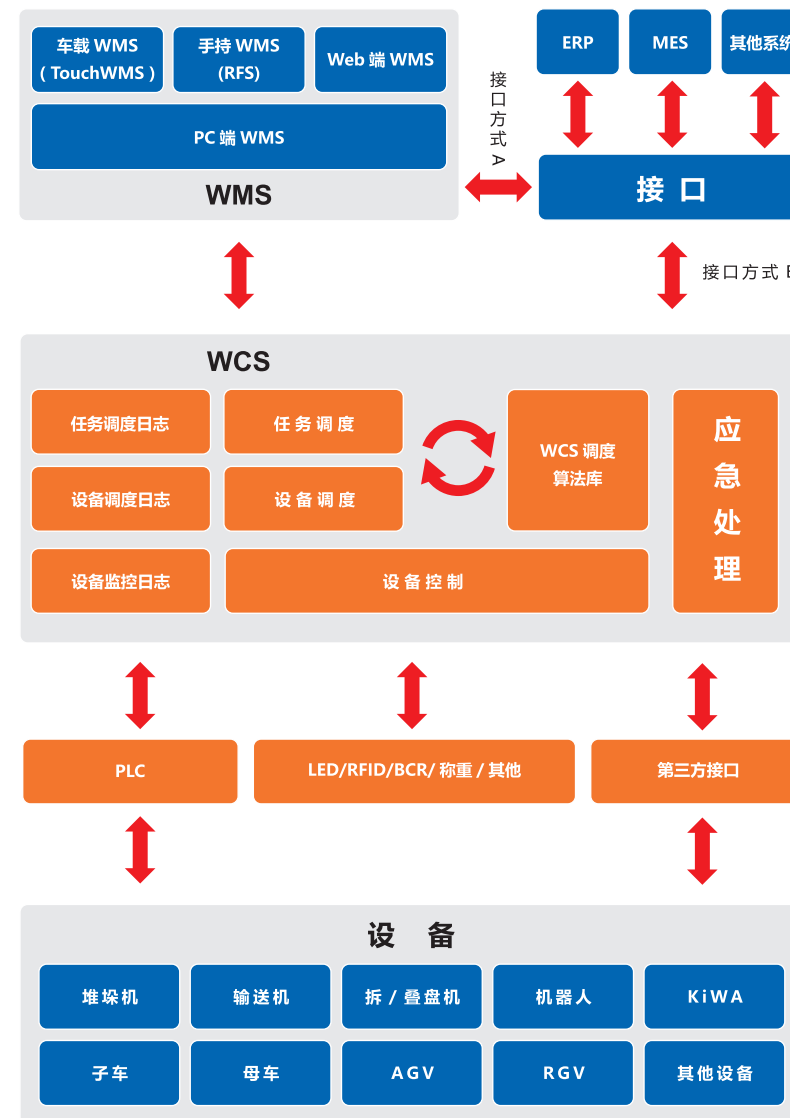
SOFTWARE SYSTEM
软件系统(WMS / WCS / RFS / PLC 总控)

WMS 系统

仓库信息管理系统作为仓库管理的大脑，作为仓库作业管理的总调度。在 WMS 系统版本升级中，将系统架构调整为在多语言版本支持的基础上，实现货物的入库和出库管理。把握货物流动环节的两个端口，在入库和出库操作时实现多重检测和校验，实现库存管理的准确、高效、安全、全面。以库存操作为核心，衍生出的多重管理模式和物流控制方法，实现企业人力、财力、物力的信息化、智能化、可持续的发展。

WMS SYSTEM

The warehouse information management system is used as the brain of warehouse management, as the overall scheduling of warehouse operation management. In the version upgrade of WMS system, the system architecture is adjusted to achieve the inbound and outbound management of goods based on the support of multi-language versions. Grasp the two ports of the goods flow link, realize multiple detection and verification during the inbound and outbound operations and achieve accurate, efficient, safe and comprehensive warehouse management. With inventory operation as the core, multiple management modes and logistics control methods derived from it can realize the informatization, intellectualization and sustainable development of enterprise's human, financial and material resources.

| 基础信息管理	货位管理	单据管理	库存管理
基础物料	货位图形界面	入库单据	库存查看
供应商信息	货位库区划分	出库单据	库存汇总
客户信息	货位锁定解锁	盘点单据	库存分布
质量与限期管理	**入库管理**	**出库管理**	**用户与权限管理**
质量管理			用户管理
有效期管理	入库组盘	出库拣选	用户组管理
近效期体型			权限管理
容器管理	货位分配	出库合单	**班次管理**
托盘管理			交班管理
周转箱管理	拼盘拼箱	出库复核	接班管理
空托盘管理			任务转班
库区管理	**日志管理**	**报表管理**	**考核管理**
ABC 分区	系统操作日志	库存汇总	工作量统计
不合格品区	库存结转日志	结转报表	出错率统计
重货轻货超高超宽	系统故障日志	库容报表	破损率统计
车载式 WMS	**手持式 WMS**	**Web 端 WMS**	**语言管理**
入库操作	入库操作	库存查看	语种设置
出库操作	出库操作	报表查看	语种切换
库存查看	库存查看	日志查看	多语言提示

接口方式 Mode of interface	接口说明 / Description of interface
接口方式 A Mode of interface A	第三方软件与 WMS 对接，实现业务管理和设备调度。The third-party software interfaces with WMS to realize business management and equipment scheduling.
接口方式 B Mode of interface B	第三方软件与 WCS 对接，直接进行设备的调度。The third-party software interfaces with wcs and directly schedules the equipment.

手持 WMS（RFS)

在信号覆盖的任何区域均可以使用手持系统参与仓库管理。手持设备具有体积小、易携带、续航时间长、使用范围广等特点。拥有对应操作权限的人员，随时随地在手持系统进行对应的操作，进行入库组盘、上架、下架、出库确认、装车复核、条码录入、库存盘点、托盘合并、托盘移动等操作。同时可选择支持一维码、二维码、射频标签识别的扫描头，通过扫描和识别操作，降低库房操作的出错率。条码可在企业甚至行业内流通，记录货物流通的所有过程，实现条码流动的可追溯。

HAND-HELD WMS（RFS)

Hand-held systems can be used to participate in warehouse management in any area covered by the signal. The handheld device has the characteristics of small size, portability, long endurance time and wide application scope. Personnel with corresponding operation authority shall carry out corresponding operations at any time and place on the hand-held system, including input pallet finishing, putting on shelves, pulling off shelves, outbound confirmation, rechecking for loading, bar code entry, inventory counting, merging the pallet, moving the pallet , etc. At the same time, the scanning head that supports one-dimensional code, two-dimensional code and radio frequency tag identification can be selected to reduce the error rate of the operation of the warehouse through scanning and identification operations. Barcode can be circulated in enterprises and even in industries, recording all the processes of goods circulation, to achieve traceability of the flow of barcode.
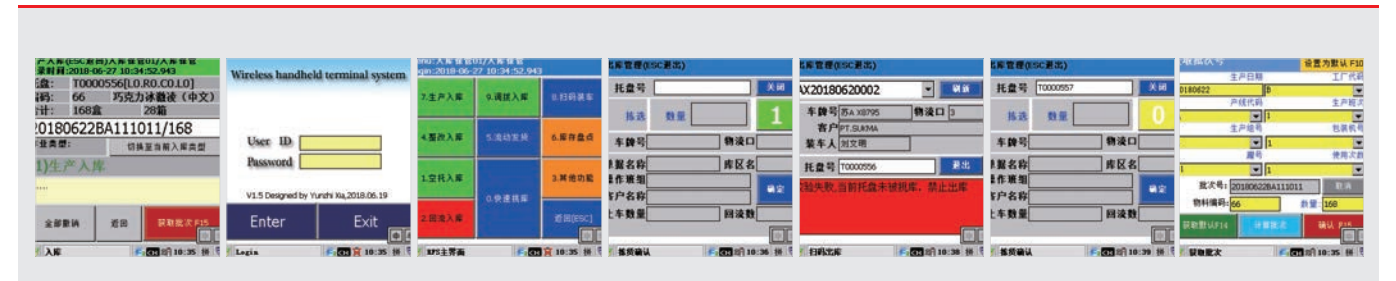
车载 WMS（TOUCH WMS)

针对使用叉车进行货物上下架搬运和移动的库房和区域，在叉车上加装车载电脑。叉车司机在进行货物和托盘搬运移动的同时，进行对应的账目调整，保证库存数据与操作的同步，实现库内管理的高效性、实时性。同时，叉车司机履行库管员职责，库房减少人员配置，降低岗位沟通成本，提升库房内人员管理的效率，提高库房管理水平。

VEHICLE WMS（TOUCH WMS)

For warehouses and areas where forklift trucks are used to carry and move goods up and down the shelves, vehicle-mounted computers are installed on the forklift trucks. Forklift truck drivers carry out corresponding account adjustments while carrying and moving goods and pallets, so as to ensure the synchronization of inventory data and operations, realize the high efficiency and real-time management in the warehouse. At the same time, the forklift driver fulfills the duties of the warehouse manager, the warehouse reduces the staffing, reduces the cost of post communication, improves the efficiency of personnel management in the warehouse, and improves the management level of the warehouse.
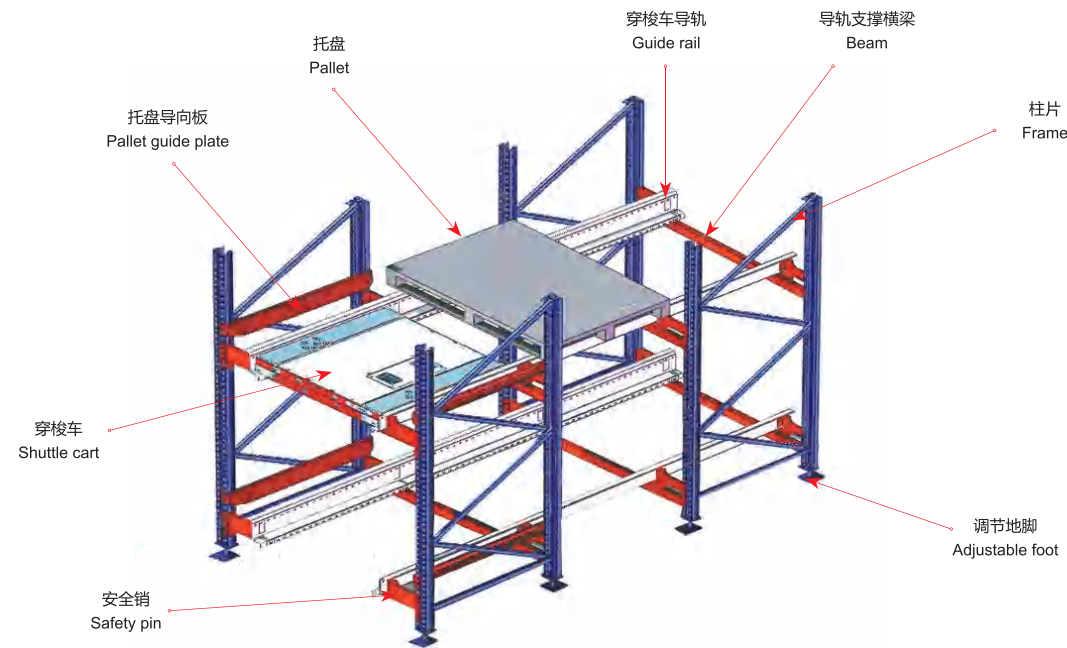
华一德智能 HUAYIDE INTELLIGENT

INTENSIVE STORAGE RACKING
密集存储货架

RADIO SHUTTLE RACKING
穿梭式货架

托盘导向板
Pallet guide plate

托盘
Pallet

穿梭车导轨
Guide rail

导轨支撑横梁
Beam

柱片
Frame

穿梭车
Shuttle cart

调节地脚
Adjustable foot

安全销
Safety pin

系 统 介 绍

　　穿梭式货架仓库中，每个通道设有特别设计的供穿梭车运行的轨道，穿梭小车在轨道上往复行驶，利用提升平板和定位传感器，通过光电传感器准确的识别托盘货位和存放间隙，自动存取货物。通过先进控制器的程序控制，保障了系统的可靠性。选择您所需要的运行模式，每个货物将被运输到轨道内相应的存储位置，依次存放，存取货物都可以很方便地通过无线遥控制由叉车进行操作。

　　穿梭车在巷道里，叉车可以将穿梭车搬运至不同巷道，多通道共享一台穿梭车，而且穿梭车可以和堆垛机、母车或 AGV 配合，自动进行不同通道之间的交换，调度更加灵活，自动化程度更高。

INTRODUCTION

In radio shuttle racking warehouse, each aisle is provided with a specially designed guide rail for the shuttle cart running. The shuttle cart is operated on the guide rail, using the lifting plate and positioning sensor and the photoelectric sensor can accurately identify the pallet position and storage gap to access goods. The advanced controller program ensures the reliability of the system. Selecting the operation mode you need ,each cargo will be transported to the corresponding storage location, and stored in turn. The access to the cargo can be easily operated by the forklift through wireless remote control.

The forklift can transfer the shuttle to different aisles. Multi-channels share one shuttle, and the shuttle can cooperate with stackers, carrier or AGVs to automatically exchange and dispatch between different channels. More flexible and more automated.
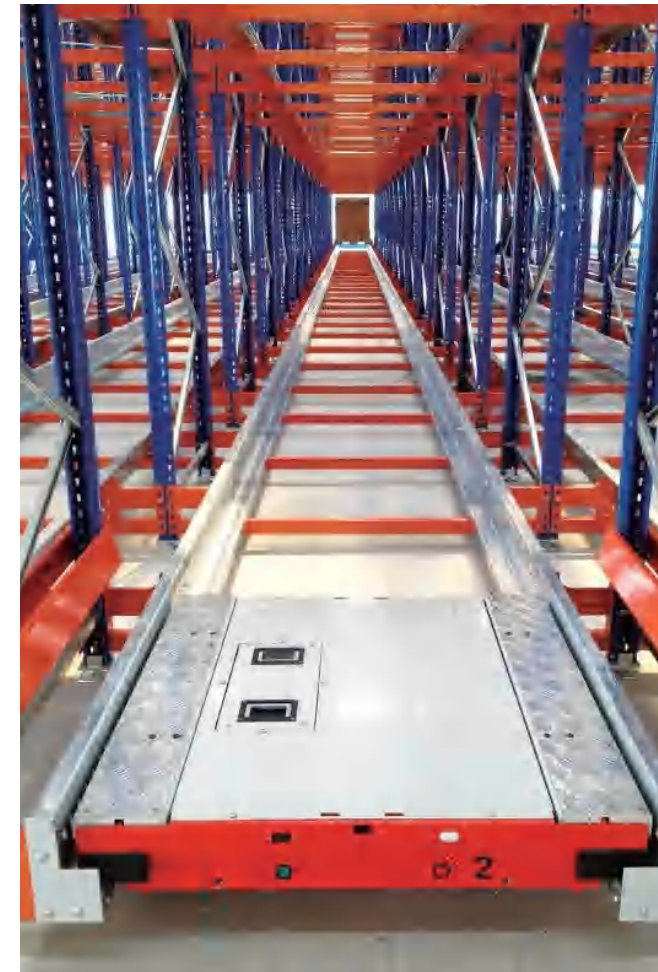
■ 产品优势

1. 高密度存储，相同空间比普通固定式货架存储量提升 2 倍。
2. 安全，货架结构稳定，叉车不需要进出货架内部，防止碰撞货架。
3. 高效，叉车搬运货物时候，小车独立作业，叉车小车交叉作业高效存取。
4. 便捷，先进先出模式下，进出库端可便捷切换，当巷道内货物未全部取出时，可一键移库，便捷作业。

■ Product advantages

1. High-density storage, the storage capacity of the same space is doubled than that of ordinary racking.
2. Safe and stable shelf structure. The forklift does not need to enter the shelf to prevent collision with the shelf.
3. Efficient, when the forklift is moving the goods, the shuttle cart operates independently at the same time.
4. Convenient, in the first-in-first-out mode, the warehouse can be easily switched in and out. When the goods in the lane are not completely removed, the warehouse can be moved with one button for convenient operation.

先进先出
FIFO

先进后出
LIFO

穿梭式货架
Shuttle Racking

普通固定货架
Traditional Fixed Racking

SYSTEM CASE
系统案例

RADIO SHUTTLE RACKING
穿梭式货架

- ■ 四层存货 | Four layers storage
- ■ 共 5266 托盘位 | total 5266 pallet location
- ■ 6 套穿梭车 | 6 sets of shuttle carts

- ■ 三层存货 | three layers storage
- ■ 共 4344 托盘位 | total 4344 pallet location
- ■ 4 套穿梭车 | 4 sets of shuttle carts
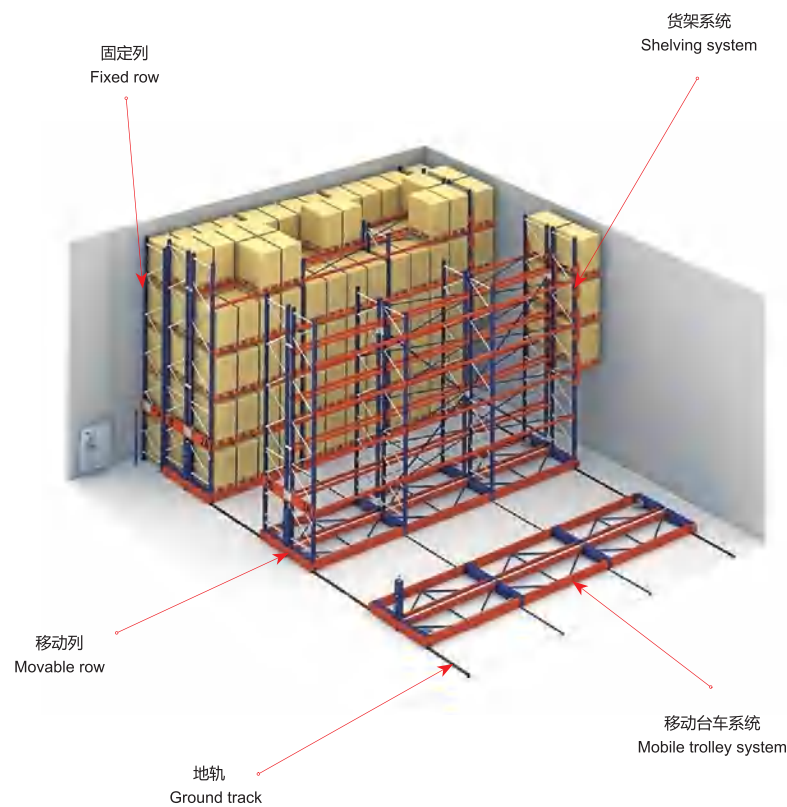- ■ 1 套独立式托盘整理机 | 1 set of independent pallet finishing machine

- ■ 四层存货 | Three layers storage
- ■ 共 6260 托盘位 | total 6260 pallet location
- ■ 4 套穿梭车 | 4 sets of shuttle carts
- ■ 1 套独立式托盘整理机 | 1 set of independent pallet finishing machine

INTENSIVE STORAGE RACKING
密集存储货架

ELECTRIC MOBILE RACKING
电动移动货架

固定列
Fixed row

货架系统
Shelving system

移动列
Movable row

地轨
Ground track

移动台车系统
Mobile trolley system

系 统 介 绍

移动式货架是在货架的底部安装有运行车轮，可在地面上运行的货架。适用于库存品种多，出入库频率较低的仓库；或库存频率较高，但可按巷道顺序出入库的仓库。同一个区域里，只需要一个作业通道，与普通固定货架相比，能节省一半的空间。

INTRODUCTION

Mobile racking is a rack with running wheels installed on the bottom of the racking, which can run on the ground. It is suitable for warehouses with many storage types and low frequency; or warehouses with high storage frequency, but can in and out the warehouse as the order of laneways. In the same area, In the same area, compared with the ordinary fixed shelves, it can save half of the space in one working channel.

■ 产品优势

1. 台车为整体模压成型，精度高，承载大，变形小
2. 可实现单列移动，多列群动，可实现均匀散开
3. 安全防夹报警功能
4. 防地震倾倒功能
5. 长列货架移动平稳无摆尾
6. 绝对先进先出，100% 拣选
7. 抗低温设计，低温冷库适用

■ Product advantages

1. The trolley is integrally molded, with high accuracy, large load bearing and small deformation.
2. Can realize single-row movement and multiple-row group
3. Safety anti-pinch alarm function.
4. Anti-seismic dumping function.
5. Long rows of racking move smoothly without swinging tails.
6. Absolute FIFO, 100% picking.
7. Low temperature resistance design, suitable for low temperature cold storage.
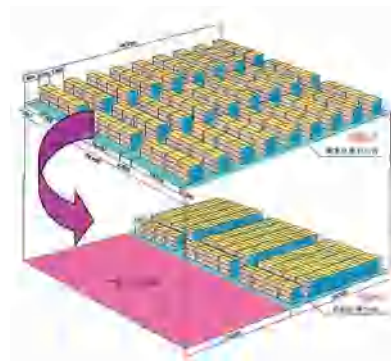
■ 1296 货位需要面积对比（参考）
1296 cargo space needs area comparison (reference)

1. 固定货架｜Fixed shelf：48.5×38.8=1881 ㎡
2. 移动货架｜Mobile shelf：23.3X38.8=904 ㎡

有轨型 ｜ Rail-guided

» 载重量更大，每列长度可达 30 多米
» 高度相较于无轨式更高
» 更高可靠性
» 操作简单
» 比无轨式价格更低，节约投资成本

» Larger load capacity, each column can reach more than 30 meters in length
» Height is higher than trackless
» Higher reliability
» easy to use
» Lower price than trackless, saving investment costs

无轨型 ｜ Rail-free

无需地面施工，地面没有突起物便于叉车通行
» 不破坏现有地面，施工简单，移动设施容易
» 无需轨道施工，交付试用期短；比有轨式约可以缩短 10-15 天；操作简单
» 维护保养：聚氨酯的车轮保养更方便；无需链条的直接驱动更可靠

» No ground construction required, no protrusions on the ground for easy forklift traffic
» No damage to existing ground, simple construction, easy to move facilities
» No track construction required, short delivery trial period; about 10-15 days shorter than rail type; easy operation
» Maintenance: polyurethane wheels are easier to maintain; direct drive without chain is more reliable

性能参数 ｜ Technical Specifications

有轨 / 无轨 System Type	单元承载能力 Unit Load	移动速度 Speed	电机功率 Motor Power	电源 Power	控制方式 Control Mode
有轨式 Rail-guided	最大 32 吨 / 单元 Max.32ton、Unit	最大 10 米 / 分钟 Max10m/min	0.4-1.5KW	三相五线制 AC380V（50/60Hz） 或 AC200/220V(日本)	手动 Manual 自动 Automated 计算机联网控制 Centralized system 遥控 Remote Control
无轨式 Rail-free	最大 16 吨 / 单元 Max.32ton、Unit				

» 华一德电动移动货架已经获得欧洲权威机构颁发的 CE 认证
» 为了防止人员或叉车在货架运行时进入巷道而引起的安全问题，电动移动货架配备了多项安全装置。

» Huayide Electric Mobile racking have obtained CE certification issued by European authorities
» In order to prevent safety problems caused by people or forklifts entering the aisle when the racking are running, the electric mobile racking are equipped with multiple safety devices.

安全装置
Safety Equipment

» 在货架运行过程中，若巷道内有异物，或人员，叉车进入巷道，电动移动货架即自动停止运行并发出声光报警。

» During the operation of the shelf, if there is a foreign object in the aisle, or a person, a forklift enters the aisle, the electric mobile shelf will automatically stop running and issue an acoustic and visual alarm.

华一德智能
HUAYIDE INTELLIGENT

SYSTEM CASE
系统案例

ELECTRIC MOBILE RACKING
电动移动式货架

无轨移动货架 | Rail-free mobile racking

- 三 / 四层存货 | Three / four layers storage
- 51 个移动列 | 51 mobile rows
- 每列载重 90 吨 | loading 90t for each row
- 共 3480 托盘位 | total 3480 pallets location
- 配合前移式叉车 | combined with forward-moving forklifts
- 绑定 wms 软件进行货位管理 | wms software for pallet location management

有轨移动货架 | Rail-guided mobile racking

- 有轨移动货架 | Rail-guided mobile racking
- 七层存货 | seven layers storage
- 8 个移动列 | 8 movable rows
- 设计每列载重 154 吨 | loading 154t for each row
- 共 1540 托盘位 | total1540 pallet location

INTENSIVE STORAGE RACKING
密集存储货架

PUSH-BACK RACKING
后推式货架

后推式货架又称"压入式货架"，利用台车承担货物在导轨上向后推存放，存第二个货物时把第一个货物向深度方向推入，取货时将第一个货位的货架取出是通过导轨的前倾角度使后面的货物向前滑动，采用的是"先进后出"的存取原则。压入式货架的存放空间利用率与驶入式货架类似，但是叉车不需要开到货架区取货，大大提高了工作效率。但存储货位的深度最多可达 5 个托盘位。

Push-back racking are also called "push-in racking". The trolley is used to carry the goods back on the guide rail for storage. When the second goods are stored, the first goods are pushed into the depth direction, and when the goods are picked up, the first one is pushed in. The racking are taken out of the cargo space through the forward tilt of the guide rail to make the subsequent goods slide forward, using the "first in, last out" access principle. The storage space utilization of the push-in rack is similar to that of the drive-in rack, but the forklift does not need to drive to the racking area to pick up the goods, which greatly improves the work efficiency. But the depth of the storage space can be up to 5 pallet locations.

IINTENSIVE STORAGE RACKING
密集存储货架

GRAVITY RACKING
重力式货架

重力式货架由柱片，横梁，滚筒，阻尼系统以及端部分离系统组成。下滑辊道的高度由工程师设计，能够使托盘从高的上货端放入，自由滑向低的卸货端。在自身重力的作用下，辊筒能够顺畅的滑动。一旦卸货端的托盘被取走最靠近卸货端的托盘会自动滑向卸货端。

Gravity racking is composed of frame,beam roller,damper system and separate device. The height of the sliding roller is designed by the engineer to enable the pallet to be inserted from the high loading end in a certainer slope and slide freely to the low unloading end. Under the action of its own gravity, the roller can slide smoothly. Once the pallet at the unloading end is removed, the pallet closest to the unloading end will automatically slide to the unloading end.

ORDINARY STORAGE RACKING 常规货架

PALLET RACKING
横梁式货架

横梁式货架又称重型货架或者是托盘货架，此种货架类型是目前使用率比较高的一种货架类型，承重大，横梁式货架由柱片（立柱）、横梁等部件组成，横梁货架结构简洁、扩展性强、安全可靠。根据用户实际使用情况：托盘载重要求、托盘尺寸、仓库实际空间、叉车实际提升高度，提供不同规格的横梁货架以供选择。

Beam Shelving is also called heavy-duty racking or pallet racking. This type of shelf is a type of shelf with a relatively high utilization rate at present. Heavy loading and composed by frame and beam. Simple structure ,strong calability, safe and reliable. According to the actual use of the user: pallet load requirements, pallet size, actual space in the warehouse, forklift lifting height, different specifications are provided for selection.

流利式货架又称滑移式货架，采用辊轮铝合金，钣金等流利条，利用货物台架的自重，从一边通道存货，另一边通道取货实现先进先出，存储方便，以及一次补货多次取货。流利架存储效率高，适合大量货物的短期存放和拣选。广泛应用于配送中心、装配车间以及出货频率较高的仓库。

Carton flow racking also known as sliding racking, composed of roller aluminum alloy, sheet metal and other fluent strips, using the weight of the cargos, storage from one side of the channel, the other side of the channel to get cargos to achieve first-in-first-out, convenient storage, and one-time replenishment pick up multiple times. The flow rack has high storage efficiency and is suitable for short-term storage and picking of large quantities of goods. It is widely used in distribution centers, assembly workshops and warehouses with high shipping frequency.
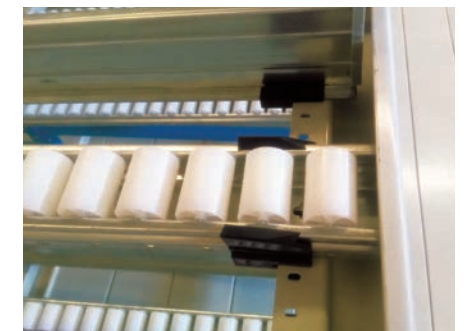
ORDINARY
STORAGE RACKING
常规货架

STEEL PLATFORM
钢平台

钢平台是为了是充分利用存储空间，用轧制出冷弯型钢作为标准件代替传统的建筑型材来搭建钢平台，并用组合式的结构代替原先的焊接式使之成为双倍空间乃至多倍空间利用的一个钢结构。在现代的仓储中被广泛应用，钢平台主要由立柱、主梁、次梁、楼面板、楼梯及护栏组成。

The steel platform is designed to make full use of storage space, and use cold rolled steel as a standard part to replace traditional building profiles to build, and replace the original welding type with a combined structure to achieve double space or even multiple space utilization. It is widely used in modern storage industry. Steel platform is mainly composed of columns, main beams, secondary beams, floor panels, stairs and guardrails.

ORDINARY
STORAGE RACKING
常规货架

MEZZANINE RACKING
阁楼式货架

阁楼式货架用自身的结构搭建成 2 层以上的搁板式货架存储区，使存储货位成倍增加，再配以物流台车、楼梯、升降机、滑道、输送设备，方便拣货作业。阁楼货架充分利用了库房的高度方向的空间，特别适合品种规格多、重量轻的小件物料的分类存储管理。

Mezzanine racking uses its own structure to build a shelf storage area with more than two floors, which doubles the storage space. It is also equipped with logistics trolleys, stairs, elevators, slides, and transportation equipment to facilitate picking operations. The mezzanine racking makes full use of the space in the height direction of the warehouse, and is particularly suitable for the classified storage management of small items with many varieties and light weight.
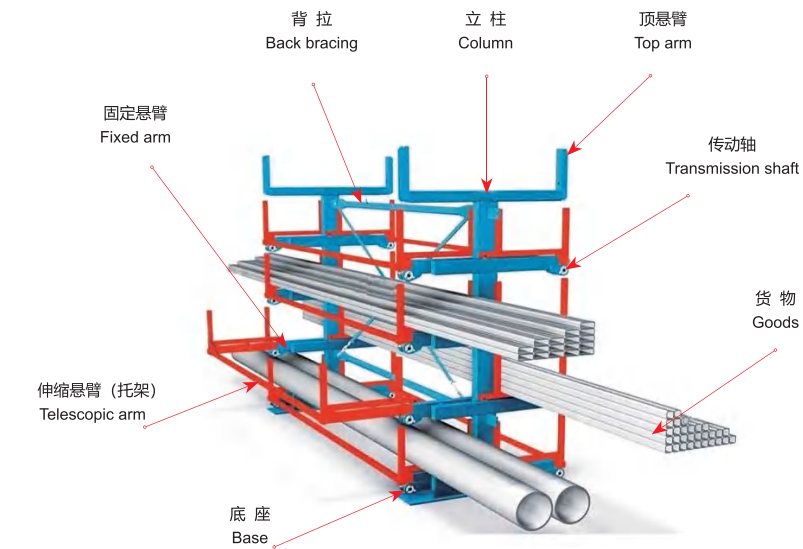
TELESCOPIC CANTILEVER RACK
伸缩式悬臂货架

背 拉
Back bracing

立 柱
Column

顶悬臂
Top arm

固定悬臂
Fixed arm

传动轴
Transmission shaft

货 物
Goods

伸缩悬臂（托架)
Telescopic arm

底 座
Base

伸缩悬臂式货架，是在传统悬臂架的基础上设计的。它保留了悬臂架所有的优势，且适用范围更广。这要归功于它具有可伸缩悬臂托架。通过手动或者电动驱动机构，取货时伸长悬臂，在取件完成后缩回悬臂。

Telescopic cantilever rack is designed on the basis of a traditional cantilever rack. It retains all ttraditional cantilever advantages, and more wider range of applications. It owes to telescopic arm. The telescopic arm is extended by manual or by electric drive mechanism when picking up the goods.

与普通悬臂式货架相比有如下区别及优势：

	普通悬臂货架	伸缩式悬臂货架
空间利用率	结合叉车使用，需要留有宽大的叉车通道，整体占地面积大，存储量相应减少。	配合天车使用，无需太大的通道，货架整体占地小，排列紧密，存储量大，适合狭小仓库，且货架臂本身可伸缩，更加节省空间，整体存储量是普通悬臂货架的 2-3 倍。
存取效率	取货时只能先取上层后取下层，存货时只能先放下层后放上层，非常不方便。	存取任意，不受先后顺序和高度层数限制。
设备投入	因其结构的局限性主要结合叉车使用，用户要购买专配叉车。	是搭配天车，吊机配套使用，实现机械化存取，一般厂房内都有的天车使用，无需再购其他设备，节约成本。

Compared with ordinary cantilever racking, it has the following differences and advantages:

	Traditional Cantilever Racks	Telescopic Cantilever Racks
Space utilization	ordinary cantilever racks are used in combination with forklifts, which require a wide forklift channel, which has a large overall area and a corresponding reduction in storage capacity.	The telescopic cantilever rack is used in conjunction with the overhead crane.It does not require a large aisle.The overall shelf occupies a small area, is arranged closely, and has a large storage capacity, which is suitable for small warehouses. The shelf arm itself is retractable, which saves space more.The overall storage capacity is ordinary cantilever. 2-3 times the shelf.
Access efficiency	ordinary cantilever racking can only take the upper layer and then the lower layer when picking up the goods, and can only put the lower layer first and then the upper layer when stocking, which is very inconvenient.	The telescopic cantilever rack can be accessed arbitrarily, regardless of the sequence and height limit.
Equipment investment	Ordinary cantilever racking are mainly used in combination with forklifts due to their structural limitations.Users need to buy specially equipped forklifts.	while telescopic cantilever racking are equipped with overhead cranes and cranes to support mechanized access. They are commonly used in factories. No need to purchase additional equipment, saving costs.

LONG PROFILES
RACKING
长材、型材货架
CANTILEVER RACKING
普通悬臂式货架

悬臂式货架，是指用悬伸出的悬臂来承载货物的重量。一般用来存放长度较长的棒料、杆件、管件、板件等货物。与普通搁板货架相比，空间利用效率更高。悬臂式货架最适合制造型的工厂使用，以叉车配合行车，作为存取和搬运工具，使用起来就更为方便、快速、同时还能对货物的存放一目了然。

Cantilever racking use the overhanging arm to carry the weight of goods. Generally used to storage long bars, pipes, plates and other goods. Compared with ordinary racking, space utilization efficiency is higher. It is more suitable for manufacturing factories. Forklifts and bridge cranes are used to access goods tools, which is more convenient and faster to use, and at the same time, the storage of goods is clear at a glance.

LONG PROFILES RACKING 长材、型材货架
ROLL OUT CASSETTE RACKING SYSTEM
蜂巢长笼式货架系统

　　蜂巢长笼式货架系统，用于存取各种长材，储存长达 6.2 米的长材，钢平台与长材密集存储并存，在最小的空间内集中存储空间。手动解除料笼自锁装置，然后使用笼车抽出专用车，可移动最大重量为 1500 kg 的盒式笼车进行存取，盒式笼车可抽出约 95％，盒式笼车尺寸可以定制，所有存放产品不需要花费太大力气就可以通过手动快速取出。

Roll out cassette racking is used to store long materials and store up to 6.2 meters of long products. The steel platform and long products coexist intensive storage, and the storage space is concentrated in the smallest space. Manually release the cage self-locking device, and then use the cage car to pull out the special car. The box cage car with a maximum weight of 1500 kg can be moved for access. The box cage car can be withdrawn about 95%. The size of the box cage car can be customized. All stored products can be quickly removed by hand without much effort.

PROJECT CASE
工程案例

韩国锦湖轮胎项目 | Korea kumhoautomated warehouse

- 42 米高库架合一立体库，1.6 万货位 | 42m H automated clad-rack warehouse, 16,000 pallets
- 为目前国内最高的立体库项目 | Highest automatic warehouse project currently in China
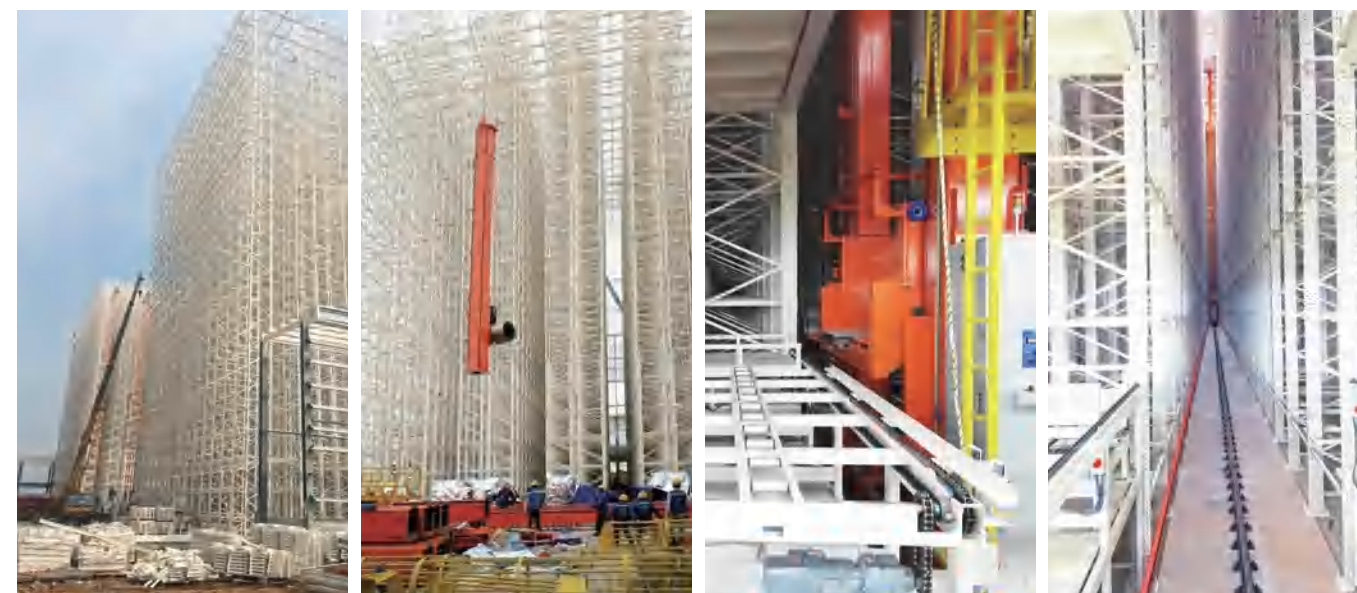
PROJECT CASE
工程案例

为目前中国最大的单体立库项目
Largest automatic warehouse project currently in China

网易考拉海淘项目 | NetEase Koala Haitao automated warehouse

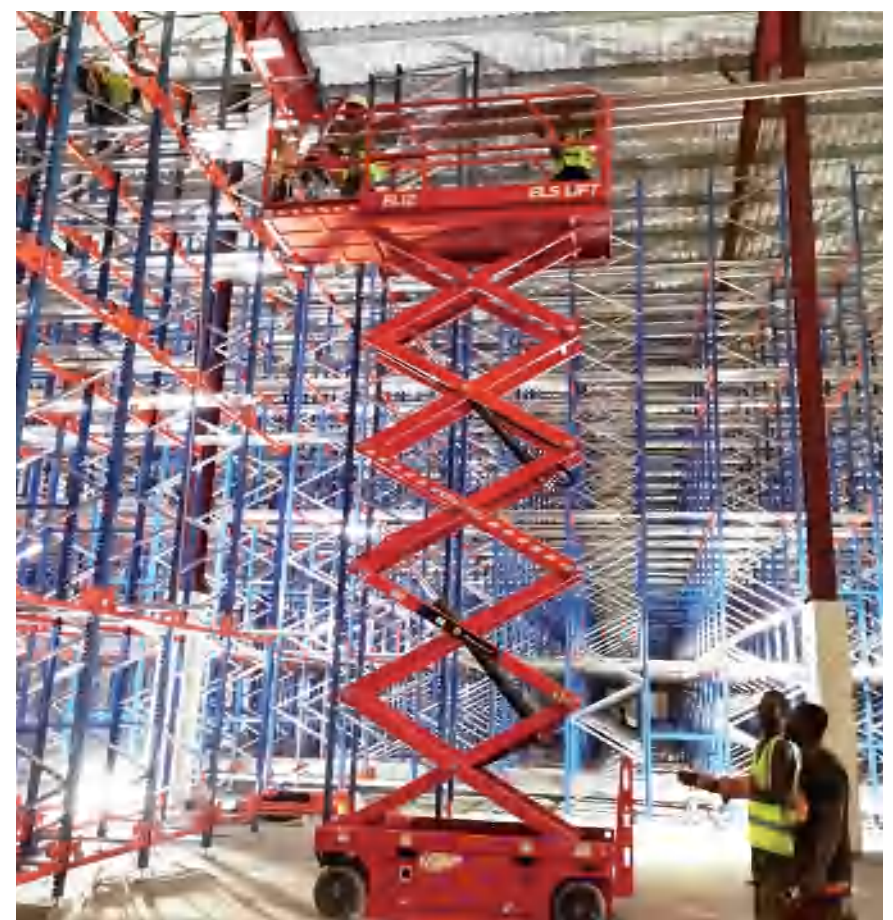■ 36 米高库架合一立体库，10 万货位 | 36m H　automated clad-rack warehouse, 100,000 pallets

PROJECT CASE

工程案例

联合国粮食供应仓库
United Nations Food Supply Warehouse

肯尼亚项目（穿梭车） | Kenya shuttle racking system

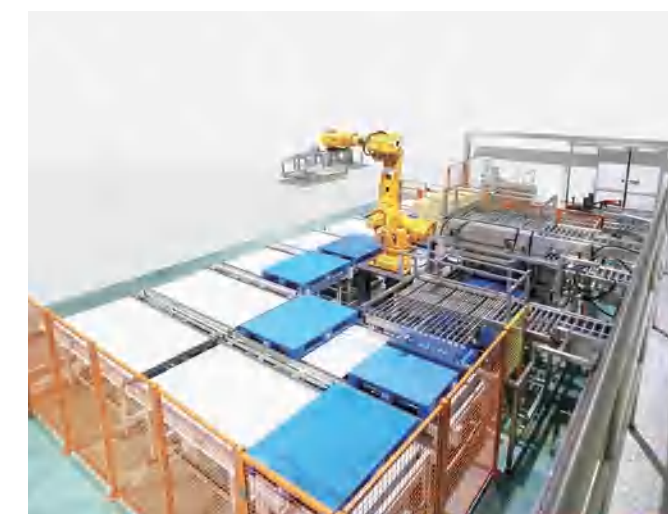■ L90*W25*H12m，6700 个托盘位 | L90*W25*H12m, 6700 Pallet Locations

PROJECT CASE
工程案例

印尼艾雪堆垛机项目 | Indonesia Aice AS/RS

■ 10 套双深堆垛机，H21 米，21000 货位 ｜ 10 sets of double-deep stackers, H21 meters, 21,000 pallets

■ -20 度食品冷冻库，生产入库自动连线 ｜ -20 degree food freezer, automatic connection of production and inbound
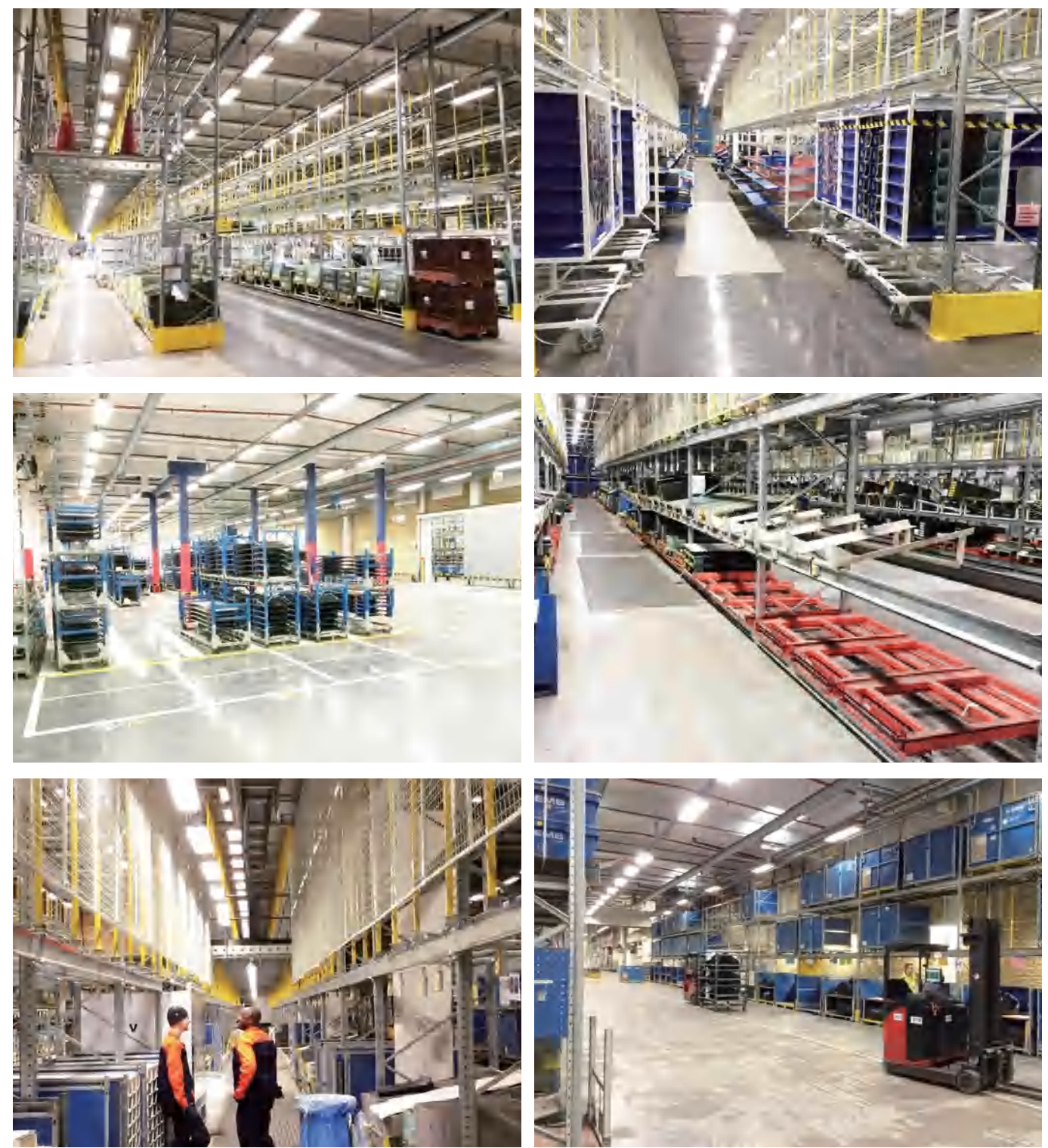
沃尔沃汽车瑞典工厂项目 | **VOLVO Swedish Plant Project**

孟加拉国堆垛机项目 | Bangladesh STACKER crane project

■ 高度 25m | Height= 25m

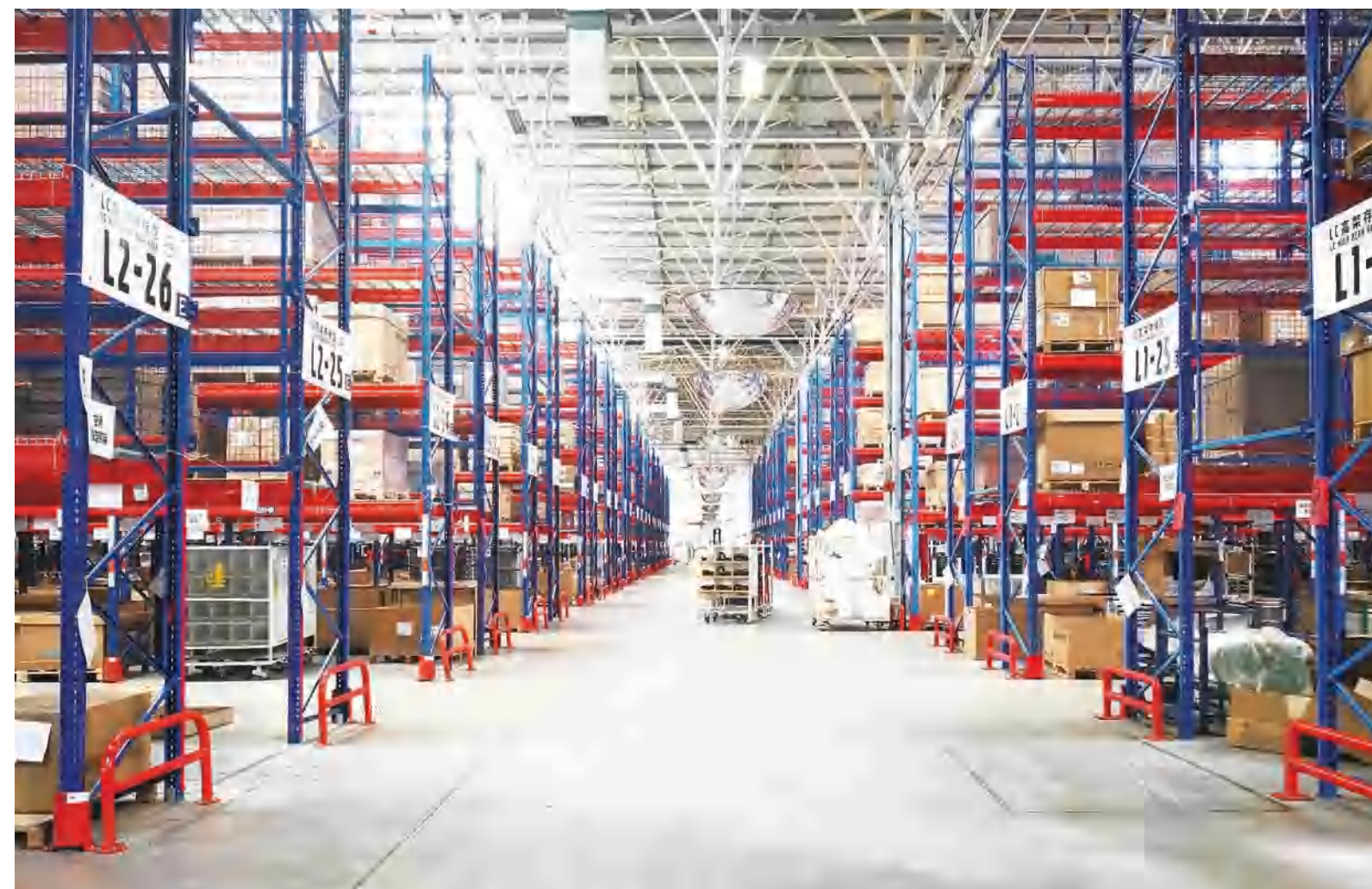■ 存储容量：20956 个托盘位置 | Storage Capacity: 20956 pallet loations

PROJECT CASE

工程案例

沃尔沃汽车·中国 | VOLVO China

- 沃尔沃汽车 中国（成都，大庆，台州，张家口） | CHINA(Chengdu,Daqing,Taizhou,Zhangjiakou)
- 合作时间：2013- 2022 | Cooperation time:2013-2022

吉利汽车中国工厂 | **Geely Auto China Factory Project**

■ 用器具部件项目 | Special Appliance Part Project

宝马汽车铁西工厂·中国 | **BMW Tiexi Factory China Project**

香港利锋物流中心项目 | **Hong Kong Lifeng Logistics Center Project**

PROJECT CASE
工程案例

PROJECT CASE
工程案例

智利 Untid 冷库 | Chile Untid Cold automated clad-rack project

- -25 度食品冷冻库，海产 | -25 degree food freezer, seafood
- 子母车密集库架一体 H25 米 | H25 meters Sub-mother Carrier Clad Rack
- 一期库：3500 货位 | Phase I warehouse: 3500 pallets
- 二期库：2700 货位 | Phase II warehouse: 2700 pallets

墨西哥堆垛机项目 | MEXICO STACKER crane project

COOPERATIVE PARTNER
—— 合作伙伴 ——

HOUSEHOLD APPLIANCES 日用家电	Skyworth 创维	Haier 海尔	IRIS 爱丽思	新华书店 XINHUA BOOKSTORE	美宜佳 MEIYIJIA
Iron & AUTO 钢铁汽车	BAOSTEEL 宝山钢铁股份有限公司	TOYOTA	吉利汽车 GEELY AUTO	VOLVO	Mercedes
FOOD & BEVERAGE 酒水食品	恒顺	国台 GUO TAI	良品铺子 BESTORE	现代牧业 MODERN FARMING	中储粮 SINOGRAIN
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PHARMACY & CHEMICAL 医药化工	双鹤药业	先声药业 simcere	五洲医药	KUMHO TIRE 锦湖轮胎	孚能集团 FUNENG GROUP
MILITARY INDUSTRY PUBLIC EMERGENCY 军工、公共应急					国家电网公司 STATE GRID CORPORATION OF CHINA

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