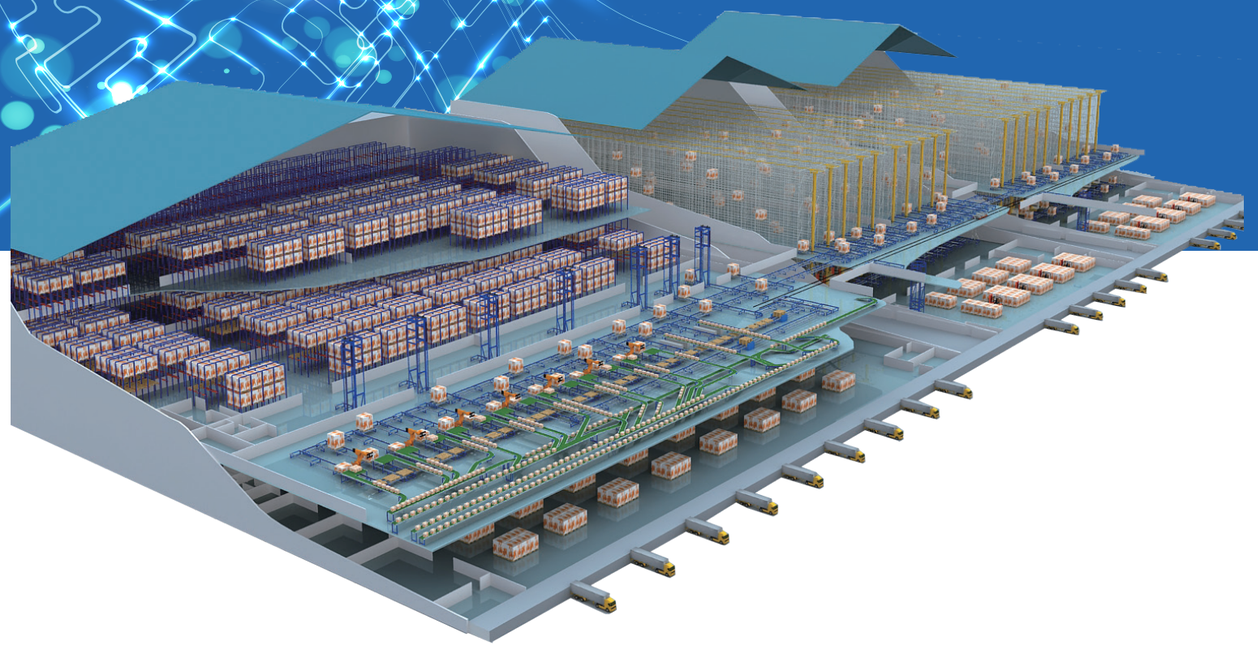
A bright future with intelligent technology

AUTOMATIC LOGISTICS SYSTEM



CSSC

昆明船舶设备集团有限公司

KUNMING SHIPBUILDING EQUIPMENT CO.,LTD.

Address: 3 Renmin Dong Road, Kunming 650051, Yunnan, P.R.China
Tel: +86-871-63132541, 63167657
Fax: +86-871-63134500
E-mail: tobexp@cstckm.cn
Web: http://www.cstckm.cn

CSSC 昆明船舶设备集团有限公司
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ABOUT US

Kunming Shipbuilding Equipment Co., Ltd. (KSEC for short), a subsidiary of China State Shipbuilding Corporation Limited, was established in 1986 commits to the development and manufacturing of automated machineries for various industries. As a 100% state-owned enterprise group, KSEC headquarters in Kunming city, Yunnan province of P.R. China, has a research and manufacturing base of 80 hectares area and over 3,000 sets state of art machining equipment. Over 4,000 employees in total and more than 50% of them are technical and professional staffs. A public company listed on Shenzhen Stock Exchange (Stock code 301311) in 2022, 4 branch offices set up in China and 1 representative office in Thailand, KSEC is expanding the ability to provide instant service to customers.

KSEC started to develop the machinery for tobacco industry since 1980’ s and has accumulated deep know how on integrated processing procedure and material handling for complex massive production and distribution. KSEC developed the automatic logistics system for tobacco industry in 1995. With comprehensive understanding of technological process and requirement of customer, KSEC becomes the leading automatic logistics solution designer and supplier. Through decades of successful implementation experience of large automatic logistics system and strong capabilities on system integration, equipment design and manufacturing, project management, operation and maintenance service, KSEC expanded the automatic logistics technology into other industries such as distillery, pharmaceutical, express delivery, e-commerce, automobile, household appliances, 3C and other industries. With thousands of automatic logistics systems successfully implemented, KSEC won the unshakable trust of customers in the fields of intelligent warehousing and manufacturing.

Taking client's need as core concern, KSEC commits to providing the most advanced and cutting edge technology to the industry and is going to be a global player and willing to provide all the best service to achieve client's best benefit.

Together with client for a bright future through intelligent technology.













DEVELOPMENT FOOTPRINT

1994
Entered the field of automated material handling

1997
First automated material handling laboratory built in China

1998
First AR/RS project designed and implemented for tobacco industry

First laser guided type AGV successfully launched

1999
Bench mark project:AR/RS for Honghe cigarette factory

KSEC' s laser guided vehicle reported in CCTV's channel Approaching Science

2000
Won the bid of international logistics center project of Haier Group,entered the household appliance industry

Warehouse management & control software (TIMMS) launched

Cigarette commercial distribution system implemented for Shenzheng tobacco company

2001
First AR/RS project designed and implemented for book industry

Laser guide type AGV and it's system won the national new product prize

2002
First AR/RS project for pharmaceutical industry
First AR/RS project for national defense assets

2003
The 100th AGV delivered

First automatic cigarette carton sorting system with record breaking capacity of 6000 pcs/h

2004
Won the title of "china's Most Reliable Material Handing Equipment Supplier"

2005
First AR/RS project for finance institution (People's Bank of China)
First AR/RS project for manufacturing industry (SEW)

2007
Won the title of "China Famous Brand Product" by KSEC brand automatic logistics system

2008
Assessed as one of the first nation grade innovative enterprise

2009
Won the largest AR/RS project (Shanghai tobacco) for tobacco industry

2010
Assessed as the national material handing high-tech equipment base

2011
First pharmaceutical AR/RS project exported to Venezuela

2012
Top 100 Software Developing Enterprise by Revenue

2013
Won the award of "Outstanding Contribution Brand for Chinese Logistics Modernization Progress"

2014
Won the honor of "Key National Software Developing Base"

The 1000th stacker crane produced

2016
Won the prize of "Enterprise Made Special Contribution to China Logistics Equipment in Latest 20 Years"

2017
Won the title of "Chinese Famous Brand in the field of Intelligent Logistics and Manufacturing Equipment "

2018
Branch offices in East China,South China and Chengdu inaugurated

2019
5G technology applying and innovation base founded in association with Huawei and China Mobile

The 2000th stacker crane produced and CE certificate issued by TUV

Branch office in North China inaugurated

2020
Won the award of "China Logistics Technology of 2020-Innovative Product" by the 5G version AGV

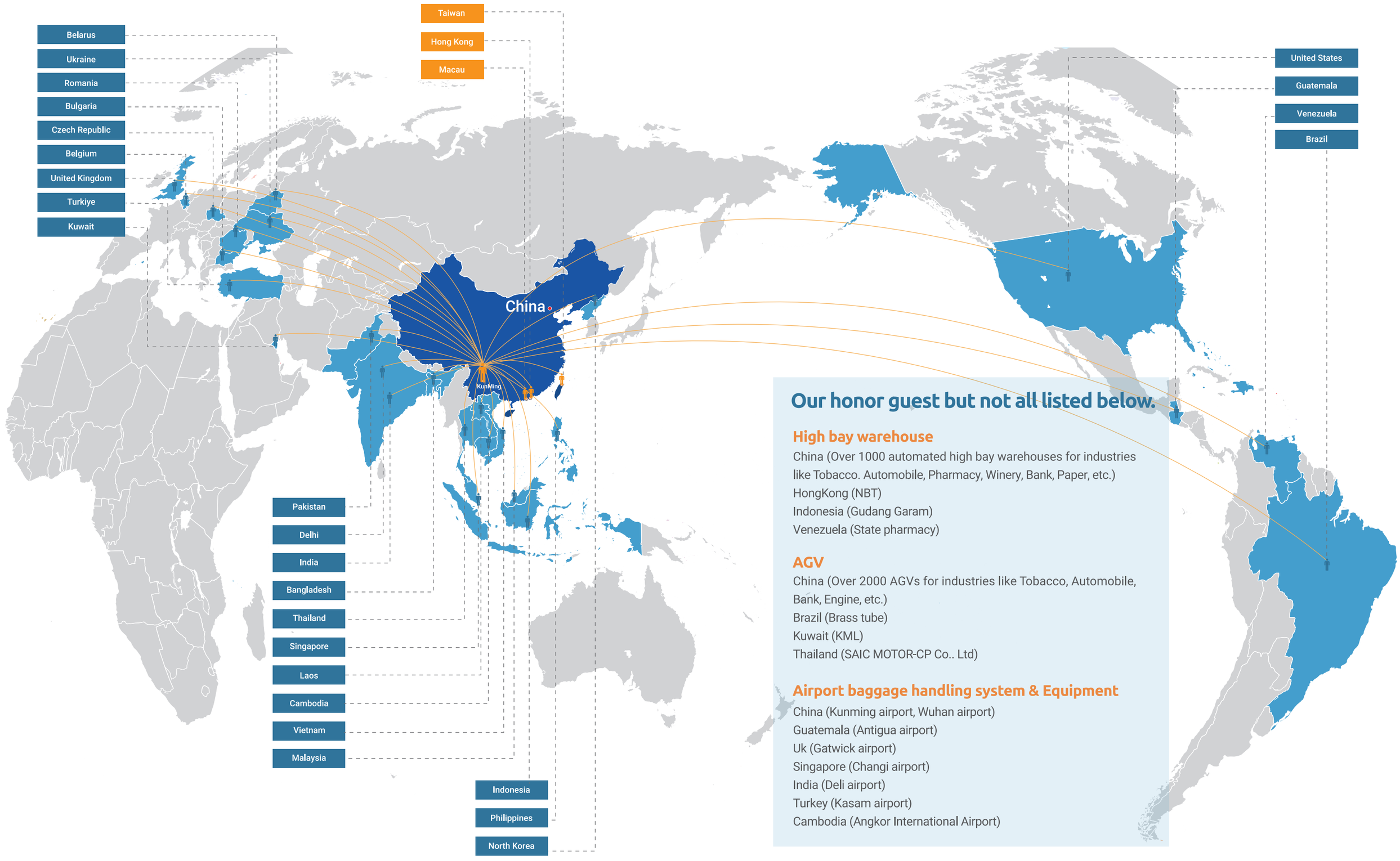
KSEC Intelligent Technology CO.,Ltd. inaugurated

Assessed as "Small Giant in the field of Special and New Technology" by the Ministry of Industry and Information Technology

2021
Won the prize of "Outstanding Contribution to Kunming Free Trade Zone"

Won the prize of "Material Handing Technology Innovation" by the High Speed Cross Belt Sorter

2022
Won the title of "Small Giant in the field of Special and New Technology"
The 3000th stacker crane produced
Publicly listed on Shenzhen Stock Market



Our honor guest but not all listed below.

High bay warehouse

China (Over 1000 automated high bay warehouses for industries like Tobacco. Automobile, Pharmacy, Winery, Bank, Paper, etc.)
HongKong (NBT)
Indonesia (Gudang Garam)
Venezuela (State pharmacy)

AGV

China (Over 2000 AGVs for industries like Tobacco, Automobile, Bank, Engine, etc.)
Brazil (Brass tube)
Kuwait (KML)
Thailand (SAIC MOTOR-CP Co.. Ltd)

Airport baggage handling system & Equipment

China (Kunming airport, Wuhan airport)
Guatemala (Antigua airport)
Uk (Gatwick airport)
Singapore (Changi airport)
India (Deli airport)
Turkey (Kasam airport)
Cambodia (Angkor International Airport)

E-commerce & Express

京东 · Alibaba Group 阿里巴巴集团 · 网易考拉 · SF · Dohome · 韵达 EXPRESS

Food & Beverage

蒙牛 MENGNIU · BEINGMATE 贝因美 · 益海嘉里 · MOUTAI 贵州茅台集团 · 五粮液 · 泸州老窖集团 LUZHOULAOJIAO GROUP

Fast Consuming Goods

中国烟草 CHINA TOBACCO · TRANLIN · 相宜本草 INOHERB · 晨鸣集团 CHENMING GROUP · GUDANG GARAM PT. GUDANG GARAM Tbk. · NU SKIN

Manufacturing

SEW EURODRIVE · HIKVISION 海康威视 · Haier · ROBAM 老板 · HUAWEI · FOXCONN

Automobile & Aviation

中國東方航空 CHINA EASTERN · 海南航空 Hainan Airlines · 中航工业 AVIATION INDUSTRY · 中国航发 AECC · 中国重汽 SINOTRUK · 一汽-大众 FAW-VOLKSWAGEN

Pharmaceutical

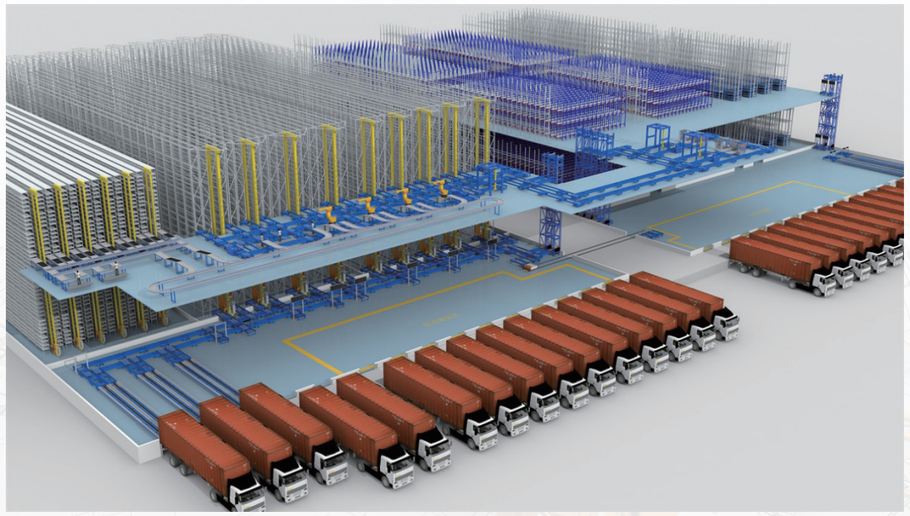
云南白药 YUNNAN BAIYAO · 华润 与您携手 改变生活 · 三生制药集团 · 神威药业 SHINEWAY · 华海药业 · CSPC 石药集团

Petrochemical & New Energy

CNPC · 中化弘润 SINOCHEM · 中国能建 CEEC · 国家电网 STATE GRID · 山东玻纤集团 SHANDONG FIBERGLASS GROUP · CALB

Others

正大集团 CP GROUP · 中国中车 CRRC · 中国印钞造币 CHINA BANKNOTE PRINTING AND MINTING · 云内动力 YUNNEI POWER · 梦洁家纺 MENDALE · 南山集团 NANSHAN GROUP



KSEC is able to provide one stop solution on intelligent warehousing and material handling for clients in various industries with service includes:

- Project consulting and planning
- Proposal design
- System simulation
- System integration
- Customized development and design of equipment and software
- Key equipment manufacturing
- Installation and commissioning
- After sale service

1.Know-how

KSEC owns core technologies in the domain of intelligent logistics and production line, such as system general plan and integrating, digital and information technology, development of customized equipment at the industrial leading level.

2.One Stop and Turnkey Solution

KSEC can provide one stop total solution covering plan consultation, proposal design, system simulation, customized development on equipment and software, key material handling equipment, system integration, installation and commissioning, after sales service as well as fulfillment of a turnkey project.

3.Outstanding Capability on System Integration and Key Equipment Supply

KSEC can offer not only system solutions to the end user but also the state of arts key equipment such as stacker crane, RGV, AGV, automation control and software to a third party as system integrator.

4.Rich Experience on Automatic Logistics System Project Implementation

Through over 1,000 automatic logistics system projects implemented for clients in various industries such as tobacco, distillery, pharmaceutical, express delivery, e-commerce, automobile, household appliance, 3C products (computer, communication, consumer electronics), KSEC has accumulated rich experience and expertise on project implementation.

1.Automated Storage & Retrieval System (AS/RS)

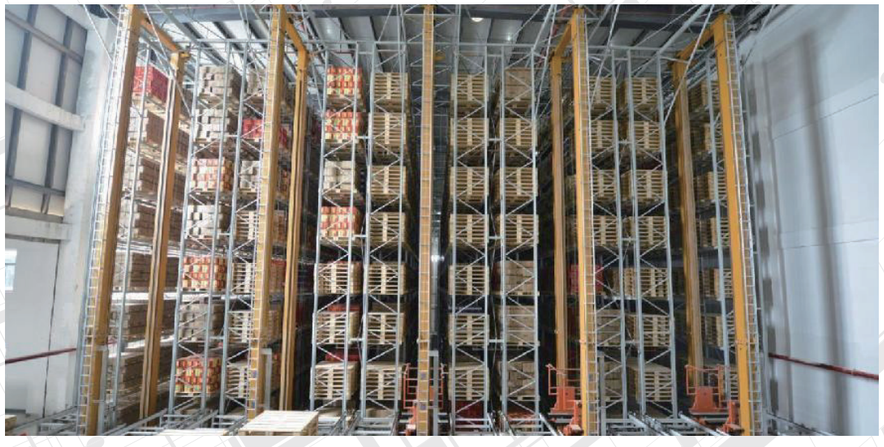
Automated Storage & Retrieval Systems thrive in applications where high volumes of inventory move-in-and-out of manufacturing or distribution operations. Upgrading to an automated storage system improves throughput and efficiency with reliable, secure storage that eliminates damage to products and equipment while providing safer, more ergonomic working conditions.

KSEC has designed and integrated automated warehousing solutions across a variety of industries and material handling needs. With this expertise, KSEC can assess the operational needs, business objectives and technology options to identify a right-sized automated solution to reliably and effectively handle the complexities of moving and storing payloads in client' s facility. From large, heavy pallet storage to smaller, lightweight goods, or custom features that accommodate unique requirements, KSEC engineers can work with client to integrate the appropriate level of flexibility and functions to improve the security of goods, throughput and efficiency, and maximize the use of vertical space.



AS/RS Benefits

- Dynamic functionality, efficient use of space, and improved work environments
- Increase throughput and efficiency with various storage configurations, transport mechanisms, and horizontal and vertical speed options
- High density storage makes the most of available footprint and maximizes vertical space
- Accurate, real-time inventory data eliminates the need for physical inventory inspections
- Eliminate damaged or missing inventory with secure storage and improved picking processes
- Inventory storage security with secure enclosures and real-time inventory control
- Reduce travel between operations for improved order cycle time
- Turnkey or custom solutions providing a right-fit solution for your operation
- Ease of maintenance with modular design and built-in diagnostics
- Integrate into larger systems to further streamline operations and improve workspace ergonomics



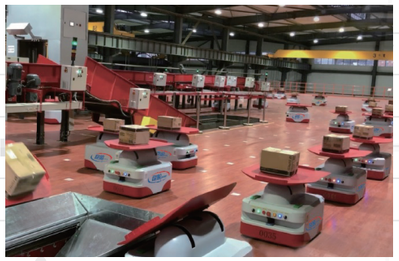
2.Intelligent Transporting and Handling System

Intelligent transporting and handling system is operated and controlled by modern information technology. It is the integration of advanced manufacturing technology, information technology and intelligent technology. The system has functions of sensing, analysis, reasoning, decision-making, and intelligent control to achieve flexibly transporting, dynamic display, automatic addressing, fault self-diagnosis, remote monitoring, etc. The system can meet the requirements of continuous, fast-paced, flexible and intelligent transporting.

The system applies automation technology, information technology, and advanced manufacturing technology to achieve timely, constant speed, and fixed point conveying of materials and workpieces in designated directions, as well as to control them to complete specified actions such as lifting, swinging, tilting, and flipping in preset spatial orientations. Intelligent transportation equipment is the main component of various large-scale production lines and transmission systems. The intelligent transporting and systems developed by KSEC have been widely applied in industries such as automobiles, engineering machinery, light industry and food, biomedicine, banknote printing and coinage, rail transit, and car parking.









Stacker Crane

The stacker crane is a type of material storage and retrieval machine to pick, transport and take unit goods from and to a high bay racking system. Since 1996, KSEC has developed different types of stacker cranes for different industries such as tobacco, automobile, Pharmaceutical, food, home appliances, manufacturing, etc.

Features

- International technical criteria (FEM, EN528, DIN) conformation
- Applicable for complex working environment
- Stable running performance in high speed and frequent cycle
- Convenient and friendly operation interface
- Complete and multi-level safety precautions

Performance

Over height:
Up to 40 meters

Payload:
Up to 4,000 kg

Payload size:
Wide range compatible to the client's requirement

Speed:
- 0~200 m/min (Travelling)
- 0~90 m/min (Lifting)
- 0~60 m/min (Telescoping)

Positioning accuracy:
- ±5 mm (Travelling and Lifting)
- ±3 mm (Telescoping)

R/S mechanism:
Fork, conveyor, shuttle, etc.



Single mast stacker crane



Double mast stacker crane

Miniload

Miniload is an automated storage system for boxes or trays, an all-in-one installation with racks, a stacker crane, conveyors and the easy warehouse management system（WMS）. It comprises one or more aisles with racks on both sides, where a stacker crane locates and extracts loads from the racks.

Performance

Over height:
Up to 24 meters

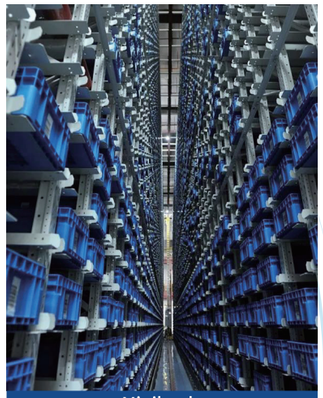
Payload:
Up to 200 kg

Payload size:
Wide range compatible to the client's requirement

Speed:
- 0~300 m/min (Travelling)
- 0~180 m/min (Lifting)

Positioning accuracy:
- ±5 mm (Travelling and Lifting)
- ±3 mm (Telescoping)

R/S mechanism:
Raising/hooking



Miniload



Miniload

Stacker Crane for Particular Application



Stacker crane for long span goods



Multiple stacker cranes on same rail



Aisle changeable stacker crane

Rail Guided Vehicle (RGV)

RGV is a flexible transportation vehicle developed by KSEC's own technology. It can link multiple destinations and be a good & economic alternative of conveyor by its characteristic that it can eliminate complex and fixed layout of conveyors, which enables simple and easily maintainable transportation system.

Performance

Outline dimension, mm:
- 1680x1480x735
- 1940x1480x735
- 1940x2300x735

Load surface height, mm:
⩾700

Payload size:
- 1200x1000X2000
- 1600x1200x2000
- 1600x2000x2000

Payload:
Up to 1,000 kg

Travelling speed:
Up to 160 m/min

Positioning accuracy:
±5 mm



Mono rail RGV



Double rail RGV



Close loop RGV



Switchable loop RGV

Automated Guided Vehicle (AGV)

Automated guided vehicles (AGVs) are driverless and battery-powered industrial robots that automatically transport materials in warehouses, distribution centers (DCs), and manufacturing facilities using designated pickup and delivery routines using computer controlled navigation systems. AGVs are available in varying sizes and capacities ,depending on the loading characteristics of the items to be handled. AGVs can be engineered to handle anything from small and fragile items to large and heavy payloads. AGVs offer a modern, economical, and safe way for distribution and production operations to scale up throughput with flexible automation instead of adding more labor, physical space, or bulky equipment.



Features

- Improved working conditions by reducing tedious and repetitive tasks
- Improved safety by reducing human error that can cause product or facility damage and potential injury
- Improved space utilization by reducing barriers like conveyor
- Redeployable between multiple tasks and locations as demands change
- Scalable by simply adding or removing vehicles and charging stations to match demand
- ROI achieved by improving safety, increasing consistency, reducing labor, and lowering operation costs
- Easy and fast installation with little or no facility modifications required

Performance



Pallet stacker type AGV

Guidance mode:
Laser/natural guidance

Payload:
Up to 1600 kg

Lifting height:
Up to 2924 mm

Travel speed:
Up to 1.5m/s

Positioning accuracy:
±5 mm

Lifting fork:
Powered by hydraulic

Communication:
WLAN

Safety precautions:
Laser scanning + Bumper + Emergency stop

Battery:
DC 24V 200Ah Lithium/Nickel-Cadmium



Pallet truck type AGV

Guidance mode:
Laser/natural guidance

Payload:
Up to 4000 kg

Lifting height:
Up to 120 mm

Travel speed:
Up to 1.5m/s

Positioning accuracy:
±5 mm

Lifting fork:
Powered by hydraulic

Communication:
WLAN

Safety precautions:
Laser scanning + Bumper + Emergency stop

Battery:
DC 24V 150Ah Lithum

Performance



High reach type AGV

Guidance mode:
Laser/natural guidance

Payload:
Up to 1600 kg

Lifting height:
Up to 9500 mm

Travel speed:
Up to 2m/s

Positioning accuracy:
±5 mm

Lifting fork:
Powered by hydraulic

Communication:
WLAN

Safety precautions:
Laser scanning + Bumper + Emergency stop

Battery:
DC 48V 560Ah Lead-acid



Car parking AGV

Guidance mode:
Composite guidance

Payload:
Up to 6000 kg

Travel speed:
Up to 1.5m/s

Positioning accuracy:
±5 mm

Jacking up device:
Powered by battery

Communication:
WLAN

Safety precautions:
Laser scanning + Bumper + Emergency stop

Battery:
Lithium supports 5 hour cruise



Customized series (engine assembly AGV)



Sorting series (roller type AGV)



Sorting series (multi-layer sorting AGV)



Three-way fork AGV

Cross Belt Sorter

Cross belt sorters are usually used to sort parcels, apparel and small items that are often difficult to sort, such as fragile or high friction products. The cross belts are a small segment of conveyor that moves products from one location to another. The main sorter component (carrier) consists of a series of carts which are comprised of small bi-directional conveyor belts. With gentle handling, it offers tight divert points and high sorting rates, allowing for fast moving industries to achieve high performance. This flexible sorting technology can be used in a variety of applications order fulfillment, cross docking, shipping and more. It' s versatility in being able to handle mixed products makes it adaptable for wide range of industries.



Linear cross-belt sorting system



Ring cross belt sorter

Features

- High throughput of a vast range of products
- Flexible integration into existing layouts
- Low operating costs
- Simple mechanical construction
- Higher density of sort locations

Performance

Carrier size:
400x700, 460x750, 630x1000, 770x1300

Carrier pitch:
500, 600, 800, 1000, 1200

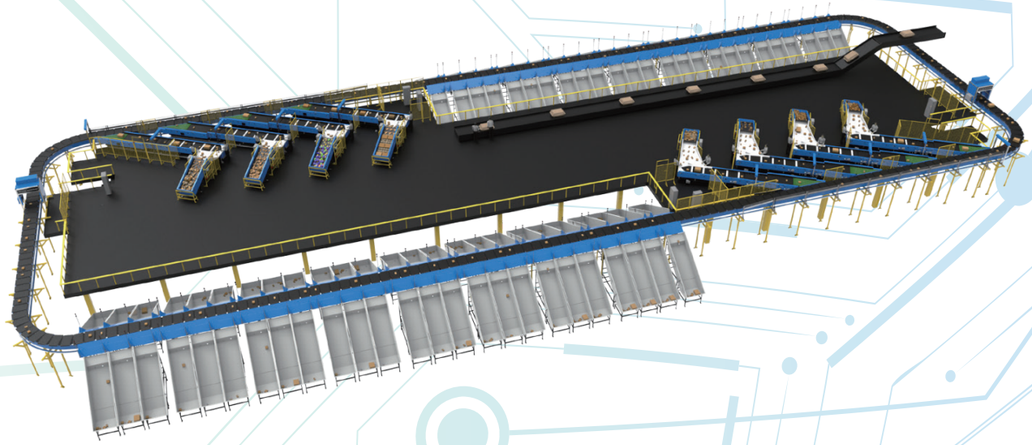
Carrier speed:
Up to 2.5m/s

Payload:
25g to 50kg

Minimum product size:
1200x700 x700mm

Maximum product size:
100x100 x10mm

Capacity:
Up to 18000 pcs/h

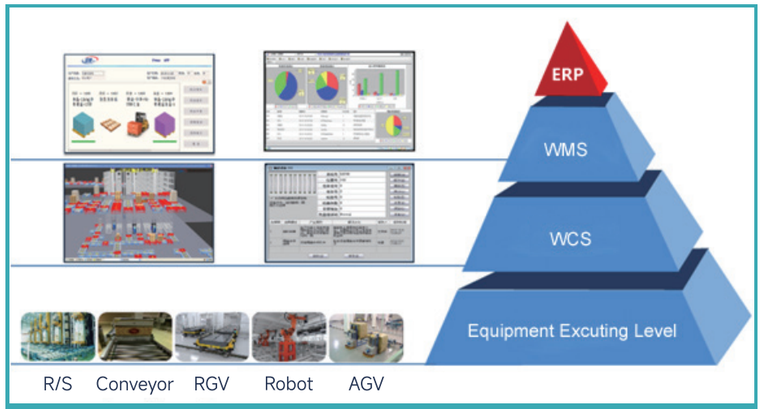


Warehouse Management System (WMS)

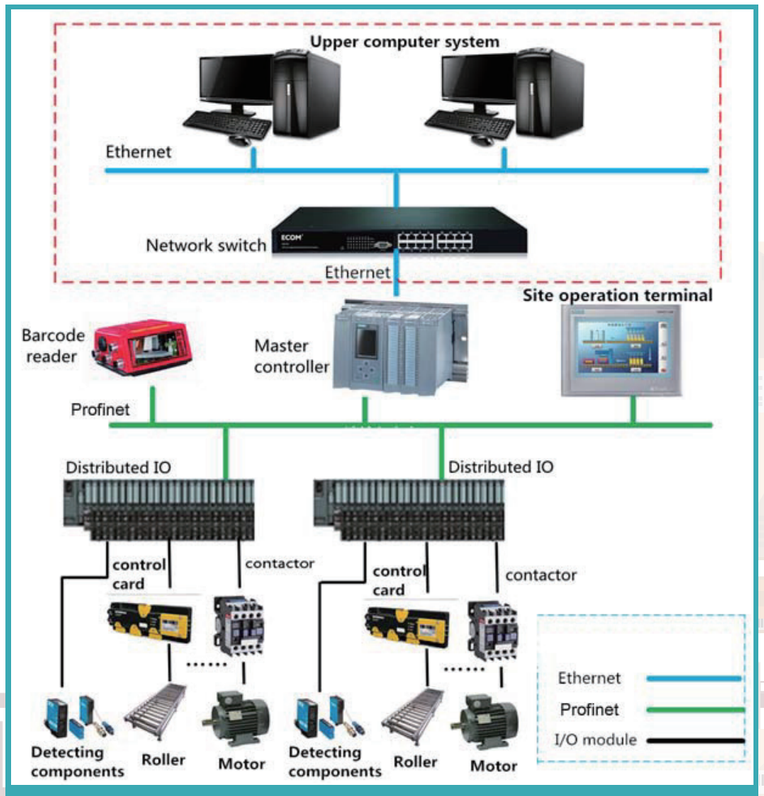
The warehouse management system (WMS) is the core of an automated logistics system, capable of perfectly managing information, material, resources, inventory, inbound and outbound according to business operation rules and practice, to meet the requirements of effective and accurate productivity to the most. The WMS needs to consider the continuous growth or change of client's business in the future, and is able to quickly meet the change of production modes by configuring business processes or function modules involved, so as to achieve flexible and agile production.

TIMMS is a WMS software pack developed by KSEC with independent copy right and over 2 decades of successful implementation in over 1,000 logistics projects. TIMMS has rich data management and query statistics functions, which can visually display production and inventory data through details or graphical lists. At the same time, the storage status of each warehouse and storage area can be displayed in real-time graphical mode. TIMMS can realize communication between the upper management system and the lower control system through interface module (TINF) as below:

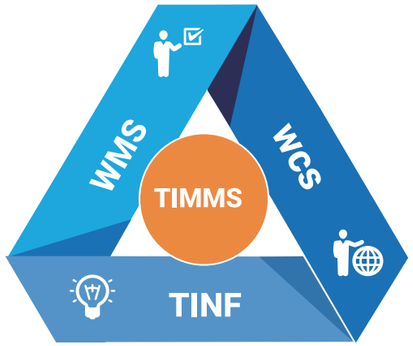
- Interface with the upper management system: To receive basic data, production documents, and tasks issued by the upper management system through a unified standardized interface, and execute corresponding instructions; to upload the inventory, documents, and report data required by the upper management system. When the upper management system is disconnected, it can independently create and run production documents, and upload corresponding data when the connection is restored.
- Interface with the lower level control system: To issue task instructions to the warehouse control system (WCS) through a unified standardized interface; to receive data and information of devices, single machines and task execution status that reported from WCS for unified processing and display.



Control architecture



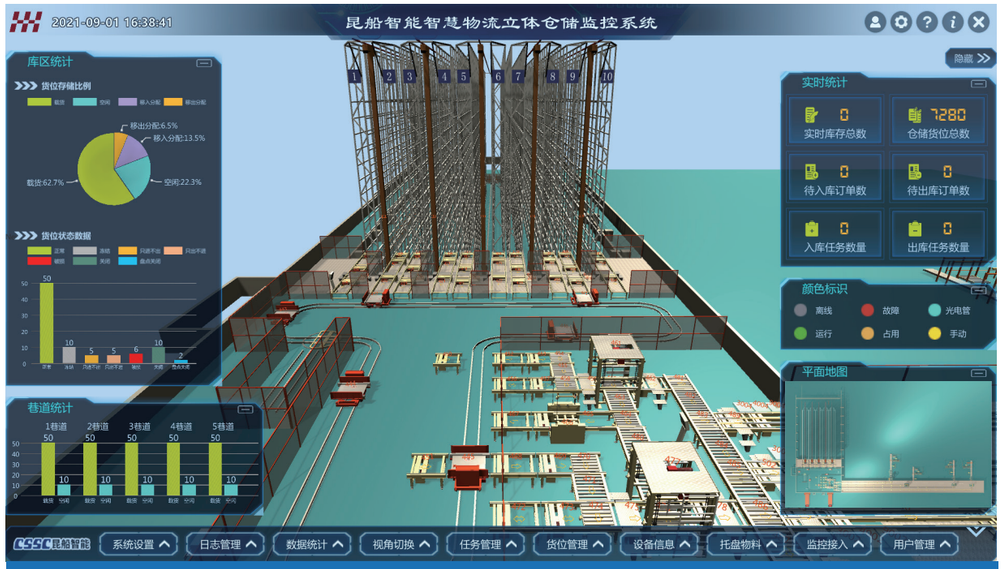
Control topology



01 WMS (Warehouse management system)
Processes the business bill and the warehousing data to realize management on the information flow of warehouse.

02 WCS (Warehouse control system)
For dispatching, control and monitoring of material handling machine to realize management on the material flow of warehouse.

03 TINF (System interface)
For interface and interact among the internal and external systems, to ensure the information flow shared and connected in the enterprise freely.



3D Monitoring and control graphic user interface

After Service

KSEC offers a complete service portfolio to ensure maximum availability of all systems – from Preventive Services to all lifelong cycle of systems.

Preventive Services can be carried out by our specially trained service technicians. In addition to the routine maintenance activities carried by the client' s staffs, KSEC offers Preventive Services which include operation inspections, safety inspections, system monitoring and training for the client' s operators. Clients can benefit from enhanced system availability through early defect and wear detection.

The preventive services consist of:

- Maintenance
- Safety Inspection
- Rack Inspection
- System Monitoring
- Training and Certification

The lifelong cycle services consist of:

- Technical support
- Spare parts
- Retrofit
- Upgrading





AS/RS for Home Appliance Industry

The logistics center was designed to store all products produced by 9 production lines, distribute and ship products to dealers, stores, e-commerce and project channels around the world. The new DC was designed to support annual manufacturing capacity of 8 million sets. Within one year from the day of awarding contract, KSEC successfully completed and delivered the AS/RS system.

System configuration:

Rack:
33,000 pallet locations

Payload:
800kg/pl

Stacker crane:
18 sets (31.5m height)

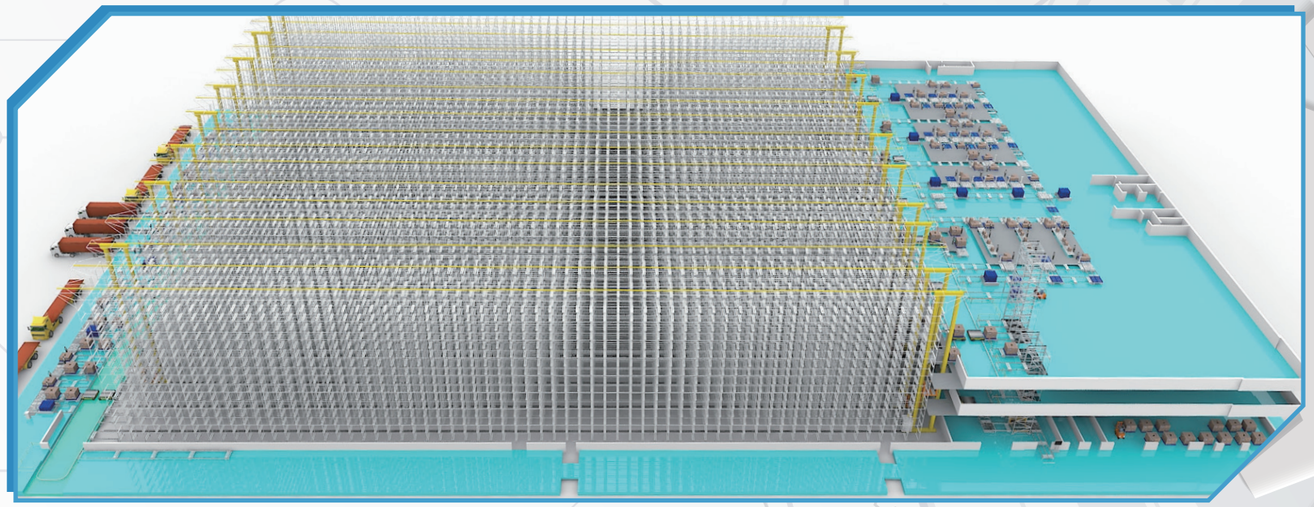
RGV:
36 sets

Palletizing robot:
10 sets

Conveyors:
800 sets

Control and management system:
1 set







Logistics center for home appliance Industry



System performance

Outbound flow rate:
250 PLs/h
(finished products and spare parts)

Inbound flow rate:
227 PLs/h
(finished products and spare parts)

Inbound/outbound flow rate:
175 PLs/h
(for finished products/spare parts picking and pre treatment of orders from e-commerce)

AS/RS for Tobacco Industry

Raw tobacco high bay warehouse

The crop of pre-cut tobaccos is vulnerable to a lot of factors such as climate, soil condition, fertilizers, etc. In order to maintain the quality of products in a high level, the big tobacco companies usually keep a certain amount of premium raw tobaccos to offset the impact of imbalance of crops quality over years. AS/RS is the most efficient way of high dense material stock that our customer decided to adopt in the year of 2014. Within 16 months after awarding the contract, a new AS/RS with structural rack was successfully delivered, constructed and put into operation.



System performance

Inbound/Outbound flow rate:
100 pls/h



System configuration:

Rack:
70,600 pallet locations

Payload:
1,300kg/pl

Stacker crane:
8 sets (30m height)

RGV:
2 sets

Control and warehouse management system:
1 set

AS/RS for Pharmaceutical Industry

Medicine distribution center

The customer initiated the construction of a new logistics center in 2008, with the goal of building one of the largest and most advanced fully automated pharmaceutical logistics centers. The core AS/RS project of the logistics center was awarded to KSEC. The whole system is equipped with a large number of advanced logistics equipment, including stacker cranes, high bay racks, U-shaped online picking platforms, spiral conveyor lines, electronic label picking systems, picking/replenishment conveyor equipment, review conveyor lines, review sorting machines, high-speed sliding shoe type sorters, PDAs, fingerprint recognizers, automatic temperature and humidity control, etc. The entire high bay warehouse has a total of 9 aisles, 12 levels, 21.6 meters high and 13,180 pallet locations, capable of storing 350,000 boxes of medicines. The daily average outbound volume reaches 40,000 boxes. By optimizing the internal logistics of the enterprise and combining with the enterprise's MES (manufacturing execution system) and POS (point of sale system), the tasks of medicine inbound, putaway, retrieval, picking, shipping, allocation of inventory can be automatically executed so as to reduce the occupation of inventory funds. The system also can provide services such as warehouse management, door-to-door distribution, returned goods management, signing bill return, low-temperature storage and cold chain control to ensure the ordered products can be quickly, accurately and timely delivered.

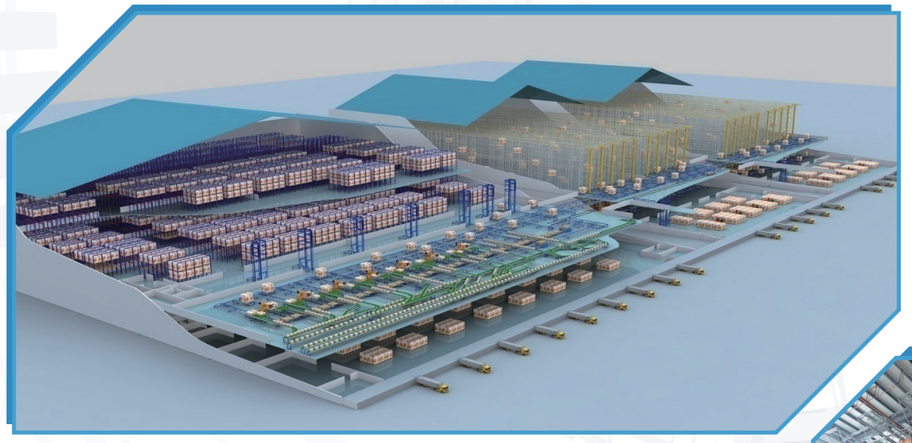




AS/RS for Beverage Industry

Logistics center for a distillery

The project includes 3 high bay warehouses and 2 plain warehouses, 30 stacker cranes, 11 palletizing robots, 4 high-speed sorting systems, over 1100 various conveyors. Total 54,956 pallet locations, with a maximum storage capacity of 54,956 tons of liquor. The maximum capacity of conveyor line reaches 31,250 cases/h, and the maximum inbound and outbound flow of pallets reaches 1,812 pallets/h. This project is the largest, most technologically advanced, and most integrated logistics project for beverage industry in China. The system integrates computer control, network, data communication, infrared transmission, field bus and other advanced technologies, realizing the automated operations on receiving and shipping, storage and retrieval, digitalization of warehouse management, networking of information transmission and visualization of security monitoring, significantly drop of operation cost.

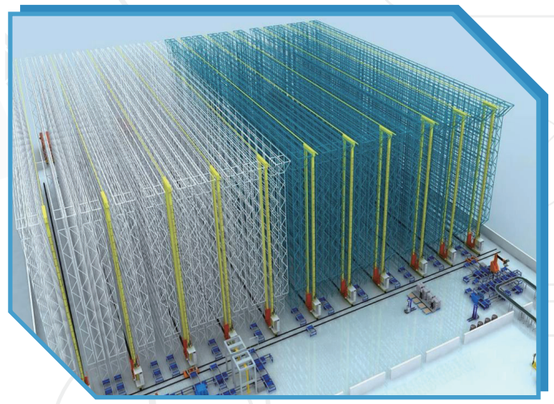






AS/RS for Chemical Industry

Logistics center for chemical industry



Payload size and weight:
1400×1400×1400mm, 1100kg/pl

Pallet locations:
21,000 PLs

Inbound capacity:
72.5PLs/h

Outbound capacity:
225PLs/h





The AS/RS designed and supplied by KSEC adopts advanced logistics information management systems and mechanized storage and transportation equipment, achieving digitalization of warehouse management, improving the automation level of palletizing and warehousing, and effectively reducing manual labor intensity. Including automatic warehousing, control, computer management system, equipped with functions such as inkjet printing, robotic stacking, and film wrapping. The system can efficiently and continuously complete the workflow of product warehousing, product outbound, product inventory, order reception, order allocation, and order confirmation required for whole factory operation.

AS/RS for Aviation Industry

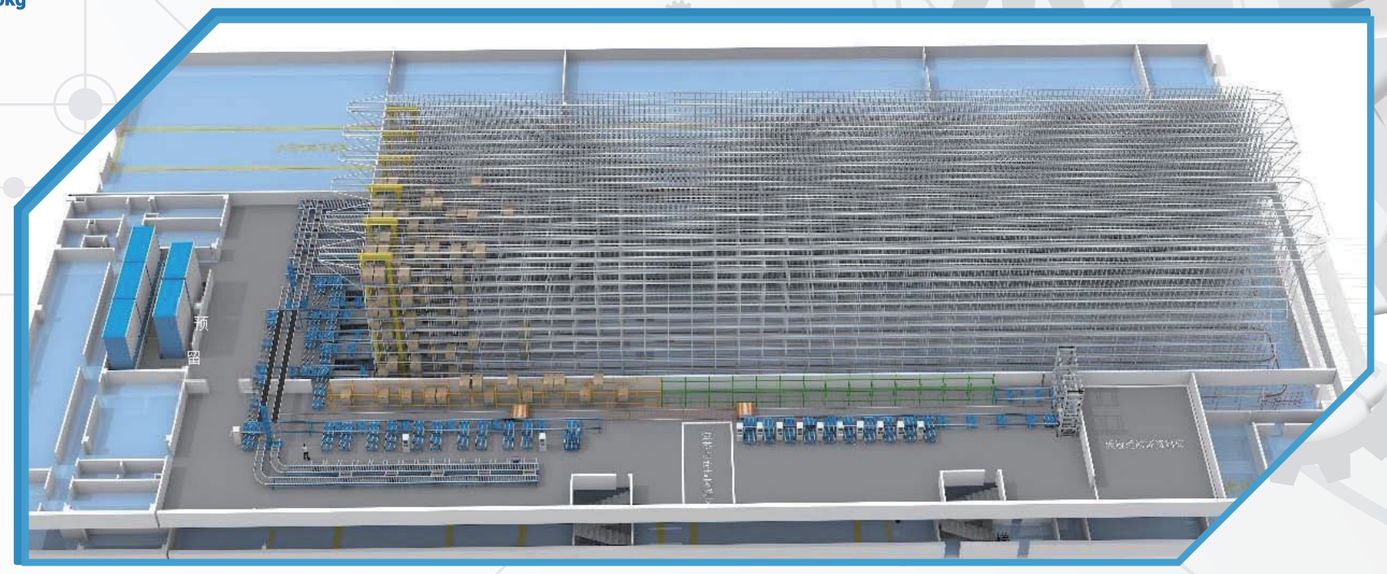
AS/RS for aviation spares

Aviation maintenance is a delicate task. The quality, accuracy, and completeness of tools and spare parts all affect the quality of maintenance, even affecting the flight safety. In daily maintenance work, a large number of tools and spare parts with a wide variety, complex specifications are needed. Scientific and efficient warehouse management is critical important. The high bay warehouse for aviation equipment designed and provided by KSEC is to store materials in turnover box or on pallet. The turnover box is used for small-size parts, and the pallet is used for medium size parts. The overall logistics flow of the system is vertically distributed. All materials enter the warehouse from the left side after quality inspection and packaging. They are retrieved and picked as per an order structure. The core functional and logistics intensive area is located in the center of the building to ensure maximum utilization of building space. The system meets the needs of material intra transferring and warehousing with multiple adaptability to complex process situations.





- **Full Pallet: 1200(L) × 1000(W) × 950(H), mm. Payload: 1000kg**
- **Turnover box: 900(L) × 400(W) × 200(H), mm. Payload: 50kg**
- **Rack for goods on pallet: 6,048 PLs**
- **Rack for goods in turnover box: 48,510 Boxes**



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FESTO

INA

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3.Automatic Sorting System

The automatic sorting system is a technology that automatically processes logistics sorting, classification, packing, transportation, and other tasks through machinery and computer control. The automatic sorting system is mainly composed of conveyor belts, scanning equipment, sorting machineries, control systems, and other equipment, which can quickly and accurately sort items to designated positions, classify and pack them. With the rapid development of e-commerce industry and the growing logistics industry, logistics automation technology has been widely used in the industry. The automatic sorting system is one of the important technologies with extensive application value in fields such as logistics distribution, express delivery, and warehouse management. The automatic sorting system developed by KSEC has following advantages:

- Efficiency: continuous, high-speed, and accurate sorting and classification, improving the operation efficiency and quality.
- Flexibility: different types of sorters and conveyors can be configured for different sorting process and throughput.
- Accuracy: high-precision identification and sorting through scanning equipment and analysis software, reducing manual operation errors.









