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# Intelligent Logistics System

Integrated Solution

Express Parcel Intelligent Sorting Solution  
Smart Airport Automatic Sorting Solution  
Industry 4.0 Intelligent Warehousing Solution  
E-commerce Retail Warehousing and Distribution Solution

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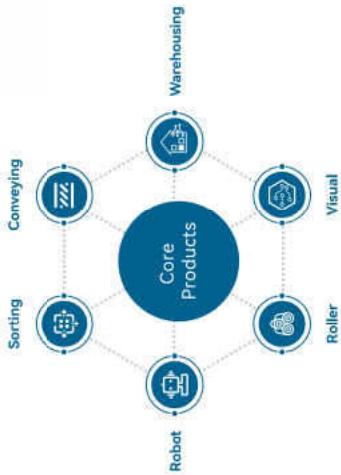
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## ABOUT WAYZIM

Wayzim is a leading comprehensive solution provider of intelligent logistics system in China, providing advanced, reliable intelligent equipment and diversified scenario services for major domestic express, logistics and e-commerce enterprises. Currently, the company has expanded its business scope to many countries and regions around the world, and committed to building itself into a world-leading intelligent logistics equipment and intelligent manufacturing enterprise.

With this spirit of "Innovation in Technology, Ingenuity in Quality", Wayzim has built up a comprehensive solution system covering multi-industry applications for express, parcel intelligent sorting, smart airport automatic sorting, industry 4.0 intelligent warehousing, as well as e-commerce retail warehousing and distribution. In order to meet customers' requirement for cost reduction and efficiency improvement, Wayzim also covers procedure of R&D and producing automatic and intelligent equipment such as sorting, conveying, warehousing, visual, roller and robot.



## INTEGRATED SOLUTIONS OF INTELLIGENT LOGISTICS SYSTEM

### Express Parcel Intelligent Sorting

Wayzim express parcel intelligent sorting integrated solution is based on intelligent sorting equipment and distribution equipment, relying on the advantages of intelligence and standardization, it is a professional solution to meet the demands of customer for sorting goods in different application scenarios.

### Smart Airport Automatic Sorting

Wayzim smart airport automatic sorting integrated solution is based on the Internet of Things and artificial intelligence technology to provide check-in, baggage check-in, security check, baggage transportation, early arrival luggage storage, luggage sorting and baggage claim for airports of different sizes.

### Industry 4.0 Intelligent Warehousing

Wayzim Industry 4.0 intelligent warehousing integrated solution is based on the connection of standardization, automation, informationization, intelligence and interaction of warehousing and logistics new technologies such as Internet of Things and mobile APP, optimizing the warehouse management system, to build an industry intelligent, automated, warehousing, logistics center, thus realizes multi-industry applications.

### E-commerce Retail Warehousing and Distribution

Wayzim e-commerce retail warehousing and distribution integrated solution is based on the warehouse and completes the seamless integration of warehousing, transportation and distribution with the support of the information system.



# Software System

## Warehouse Management System



WMS system is a software information system for fine management of warehouse goods, storage location and quantity which is connected to ERP (Enterprise Resource Planning Management System), MES (Manufacturing Execution System), and WCS (Warehouse Control System). Connected to ERP (Enterprise Resource Planning Management System), MES (Manufacturing Execution System) and connected to WCS (Warehouse Control System), it is the extension and supplement of the warehouse management module in ERS and the source of WCS tasks. Through various business policies and intelligent algorithms, different tasks are issued to WCS. Wayzin WMS system supports dynamic allocation strategies for various storage locations, supporting various outbound strategies such as FIFO, LIFO, designated vendor priority and specific location priority, and is able to support the customization of corresponding strategies to meet the demands of customers for various business management of intelligent warehousing.

## Warehouse Control System

WCS is a device management system for scheduling management and control of all automation devices in intelligent warehousing. After receiving the command, WCS automatically generates a scheduling plan, and sends execution instructions to the relevant device step by step according to the scheduling plan until the task is completed. Also it can monitor and display the status and location of all devices in real time, and warn and prompt abnormal information.

## 01 | Warehouse Management System

## 02 | Warehouse Control System

## SCADA System

SCADA system is a tool to complete the status monitoring and operation control of the BHS system. Its graphical simulation interface is divided into three layers of display: overall system display (i.e.: full view), system local zoomed-in display (i.e.: sub-view of each subsystem) and detailed parameters or work data display of the equipment.

## 03 | SCADA System



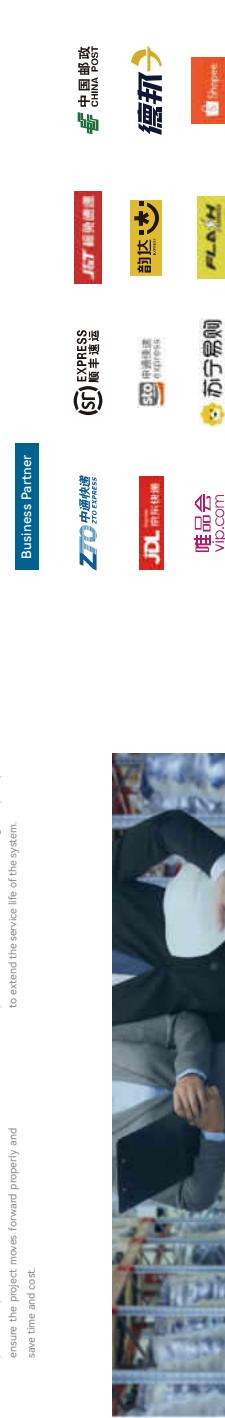
**With customer-oriented principle, we can provide entire lifecycle and continuous value-added services to our customers.**



**Technical Guidance**  
We will provide a series of product-related instructions and operating documentation, for your equipment operators. We will arrange a detailed explanation of professional technical personnel to ensure the correct use of the system and have a certain ability to deal with unexpected problems.

**Remote Service**  
We take timely on-site support as the first service principle, together with remote technical service, to achieve real-time and rapid problem diagnosis and resolution.

**On-site Service**  
Depending on the reality of your project, we provide experienced technicians on site to ensure the project moves forward properly and save time and cost.



# FOCUS ON EACH PARCEL

## Express Parcel Intelligent Sorting Integrated Solution

Waym express parcel intelligent sorting integrated solution is based on intelligent sorting equipment and distribution equipment, relying on the advantages of intelligence and standardization, it is a professional solution to meet the demands of customers for sorting goods in different application scenarios.

### Cross-belt Sortation System

The cross-belt sorter is a conveying and sorting equipment composed of multiple continuous carriers and running at high speed in a given track. The equipment can continuously process various small packages, boxes, cartons and other parcels in large batches, and can efficiently sort from light and small envelopes to goods weighing up to 30 kg. Highly modular components make the sorting system highly integrated and adaptable to the sorting sites. The performance of the modular mechanical components has been fully tested, stable and durable after long and high frequency practical use tests. The whole system is highly efficient with a short project implementation period during the specific implementation of installation and commissioning.



| Technical Item             | Single-deck / Double-deck / Triple-deck /<br>Double-deck with Dual Tracks   | Parcel Sorter                           |
|----------------------------|---|---|
| Carrier size(mm)           | 600×700   | 800×700                                 |
| Carrier belt size(mm)      | 1460×34×2   | 2477×625×2                              |
| Sorting capacity(pph)      | 12000(single-deck with one infed zone)/<br>24000(double-deck with one infed zone)/<br>36000(three-deck with one infed zone)/<br>24000(double-deck with dual tracks) | 11300 (single-deck with one infed zone) |
| Sorting accuracy           | ≥99.98%   | ≥99.8%                                  |
| Speed of sorting line(m/s) | 2.5m/s  | 2.5m/s                                  |
| Size of sortable item(mm)  | 150×150×90-445×380×250  | 150×150×90-1000×700×700                 |
| Weight of item(kg)         | 0.05-30   | 1-50                                    |



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### Drum Motors Summary(2)

| Motor type   | Permanent magnet synchronous motor      | Permanent magnet synchronous motor | Permanent magnet synchronous motor                   | Permanent magnet synchronous motor |
|--|---|------------------------------------|--|------------------------------------|
| Motor form   | External-rotor motor                    | External-rotor motor               | External-rotor motor                                 | Internal-rotor motor               |
| Pole number  | /                                       | /                                  | /  | 8                                  |
| Outer diameter of roller(mm)   | 67                                      | 70                                 | 66(friction wheel)/<br>72(rubber-coated pivot wheel) | 165                                |
| Rated power (kW)   | 0.2(0.2kW) / 0.4(0.4kW) / 0.7(0.7kW)    | 0.6                                | 0.06   | 2.4(2.4kW) / 2(2kW)                |
| Rated speed (RPM)  | 750                                     | 750                                | 850  | 600                                |
| Rated voltage(V)   | /                                       | /                                  | /  | 2.5(2.4kV) / 2(2kV)                |
| Torque(NM)   | 7                                       | 7                                  | 2  | 12                                 |
| Load(kg)   | 0-15(0.2kW) / 0-35(0.4kW) / 0-60(0.7kW) | 0-30                               | 0-8  | 0-50                               |
| Working system   | S2                                      | S1                                 | S1   | S1                                 |
| Min. roller length(mm)   | 614                                     | /                                  | 700  | 1020                               |
| Weight at min. roller length(kg)   | 2.2(0.2kW) / 0.4(kW) / 2.4(0.7kW)       | 2.64                               | 714  | 39                                 |
| Quality criteria   | 0.53                                    | 0.58                               | /  | 3.8                                |
| (For every 100mm increase in the roller length,<br>mass increase of the electrical roller by X kg) | /                                       | /                                  | /  | 5                                  |
| Matching belt length(mm)   | /                                       | /                                  | /  | 1000-1400                          |
| Matching belt length(mm)   | /                                       | /                                  | /  | 2000-3000                          |
| Application  | Cross-belt sortier                      | Dynamic/static weighing scale      | Belt conveyor<br>(below 5m)                          | 1000-1400<br>5000-10000            |
|  | Infeed station                          | Photo-wheeled sorter               | Belt conveyor<br>(above 5m, below 15m)               |                                    |

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## Drum Motors



### Express Parcel Intelligent Sorting

- Manual Infeed of Small Parcels with Robot-Arm
- Large Parcel Unloading Area Sorting
- Large Parcel Loading Area Sorting
- Small Parcel Sorting System
- Baggage Check-in

### Smart Airport Automatic Sorting

- Airport Baggage Narrow Carrier Sortation System
- Airport Cross-belt Sortation System
- ICS (Individual Carrier System)
- Arrival Baggage Carousel
- Baggage Check-in

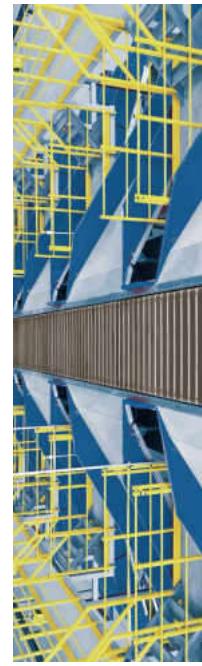
## Drum Motors Summary(1)

|                                  | TM50  | TM65                               |
|----------------------------------|---|------------------------------------|
| Diagram                          |   |                                    |
| Motor type                       | Permanent magnet synchronous motor  | Permanent magnet synchronous motor |
| Motor form                       | Internal-rotor motor  | External-rotor motor               |
| Pole number                      | 4   | /                                  |
| Outer diameter of roller(mm)     | 50  | 65                                 |
| Rated power(kW)                  | 0.05  | 0.25                               |
| Rated speed(RPM)                 | 382   | 750                                |
| Rated speed(m/s)                 | 1   | /                                  |
| Rated voltage(V)                 | DC24  | DC48                               |
| Torque(NM)                       | 1.25  | 2.5                                |
| Load(kg)                         | 0~50  | 0~15                               |
| Working system                   | S1  | S2                                 |
| Min. roller length(mm)           | 320   | /                                  |
| Weight at min. roller length(kg) | /   | /                                  |
| Quality criteria                 | For every 100mm increase in the roller length, mass increase of the electrical roller by 2 kg | /                                  |
| Matching belt width(mm)          | /   | /                                  |
| Matching belt length(mm)         | /   | /                                  |
| Application                      | Intelligent Warehousing<br>Narrow carrier sorter  |                                    |

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### Linear Cross-belt Sortation System

The linear cross-belt sortation system, based on the traditional cross-belt sorters, has been restructured to change the horizontal circulation pattern to a vertical circulation. The more compact structure and highly modular design results in a smaller occupied area and a more integrated and adaptable sorting site. Wayzim linear cross-belt sortation system can continuously process large batches of all types of packages, from light and small envelopes to goods weighing up to 30 kg. The fastest running speed of the sorting line can reach 1.5 m/s, and with the accurate positioning system, the sorting capacity can reach 10,800 p/h. The performance of the modular mechanical components has been fully tested, stable and durable after long and high frequency practical use tests.



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### Pivot Wheel Sortation System

**Flexible Deployment**  
Wide applicability  
Compact structure  
Small occupied area

**Active Maintenance**  
Highly modular design  
More convenient maintenance

The pivot-wheel sorter is a guided wheel type sorting device mainly used for the sorting of large woven bags, flexible packaging, cartons and other parcel types. As a stand-alone module, it can be used in combination with a conveyor and deployed anywhere on the conveyor or line.



**Gentle Sorting**  
Adopting "soft sorting" mode  
Avoiding violent sorting

**Heavy-duty Transport**  
Reducing labor and manual data collection errors  
Improving sorting efficiency



| Technical Item               | 300 Line Sorter            | 500 Line Sorter        | Narrow Carrier Sorter      |
|------------------------------|----------------------------|------------------------|----------------------------|
| Carrier size(mm)             | 300×700                    | 472×700                | 150×800/1000×1200          |
| Carrier belt size(mm)        | 1470×215×1.5               | 1468×400×2             | 1673×2073×2473×118×2.5     |
| Sorting capacity(pph)        | 9000                       | 8000                   | 6000~9000                  |
| Sorting accuracy             | ≥99.98%                    | ≥99.98%                | ≥99.98%                    |
| Speed of sorting line(m/s)   | 1.5m/s                     | 1.5m/s                 | 2m/s                       |
| Sorting the drive mode       | Asynchronous motor+reducer | Linear motor           | Asynchronous motor+reducer |
| Size of sortable items(mm)   | 150×450×300~300×300        | 150×150×40~300×400~400 | 150×150×40~1000×800×700    |
| Weight of sortable items(kg) | 0.05~30                    | 0.05~30                | 0.5~60                     |



## SATISFY WITH EACH JOURNEY

### Smart Airport Automatic Sorting Integrated Solution

Wayzim smart airport automatic sorting integrated solution is based on the Internet of Things and artificial intelligence technology to provide check-in, baggage check-in, security check, baggage transportation, early arrival baggage storage, baggage sorting and baggage claim for airports of different sizes.

### Infeed Station Bottom-Side Barcode Scanning System

#### Functions: bottom side code reading

- The infeed station bottom-side barcode scanning system is based on the WZL100-GM intelligent line scan camera as the core, which is combined with the self-developed image processing technology and deep learning technology that can identify the express parcel with waybill sheet feeding down when passing through the singulator/stack separator system or the robotic arm loading system.
- The system is combined with the cross-belt sorter 5-sided barcode scanning tunnel, which can realize six-sided all-round code reading for small and medium-sized express parcels.



### Dynamic Weighing System (DWS)

#### Functions: volume measurement, barcode scanning, weight measurement

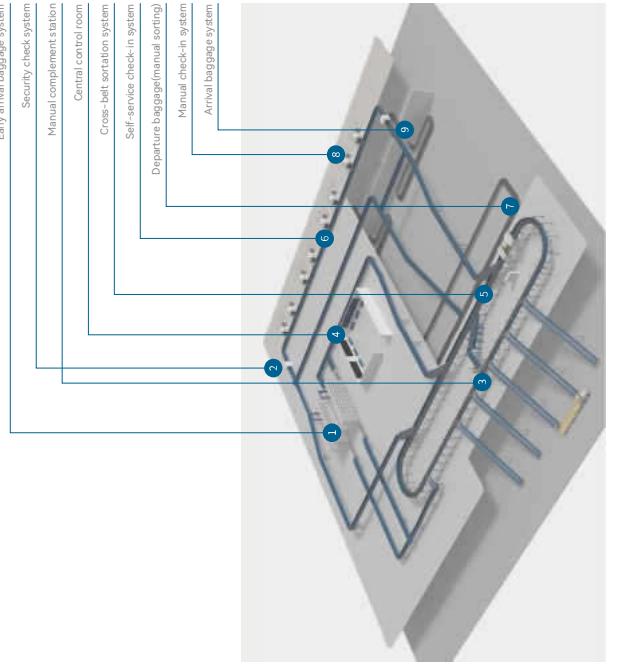
- The dynamic weighing system(DWS) adopts the self-developed high-resolution intelligent code reading camera, volume measuring instrument, and dynamic weighing module, which can efficiently complete the real-time accurate collection and output of the three major information of volume, barcode and weight.
- The system can realize the automatic sorting of express parcels with the sorting equipment.



## Baggage Handling System

Wayzim can provide integrated solutions from check-in, baggage check-in, security check, baggage transportation, early arrival baggage storage, baggage sorting and baggage claim for airports of different sizes.

- Increasing baggage handling efficiency and improving passenger experience
- Baggage whole-process tracking to avoid lost sorting
- The system design flexible and can be easily expanded
- The system runs smoothly and reliably



### Position Detection System

#### Functions: position detection, over-edge detection, one-carrier with multi-parcel detection, deviation correction detection, empty carrier detection



- The singulator vision system is based on WZ-GE industrial camera as the core, which is combined with self-developed image processing technology and deep learning technology to realize real-time accurate positioning of express parcels.
- At the same time, through the software linkage control system, different control units are implemented to automatically separate, distance and intelligently line up, so that the messy express parcels become single-row formation according to the spacing and enter various automated sorting equipment at the back end in an orderly manner.



## Singulator Vision System

#### Functions: identification and positioning, separation distance, intelligent sequencing

- Supporting multi-camera stitching to meet the needs of different field of view
- Compact light source in regulated structure, easy and fast installation and commissioning



- Precise Detection Detection accuracy of 99.99%
- Hassle-free Use Applicable to a variety of working conditions, not limited by the type of express parcels
- Powerful Functions Multi-purpose machine with five detection functions in one

# Intelligent Logistics Vision Solution



- 01 | Cross-belt Sorter 5-Sided Barcode Scanning Tunnel**
- 02 | Large Parcel 6-Sided Barcode Scanning Tunnel**
- 03 | Infeed Station Bottom-Side Barcode Scanning System**
- 04 | Position Detection System**
- 05 | Dynamic Weighing System (DWS)**
- 06 | Singulator/Vision System**

## Cross-belt Sorter 5-Sided Barcode Scanning Tunnel

### ■ Functions: dynamic code reading of small and medium parcels

- Reading system uses an intelligent image-base barcode reading camera to complete the barcode recognition of the front, rear, left, right and top sides of the express parcels.
- The system is widely used in small and medium-sized cross-belt sorting scenarios.



## Large Parcel 6-Sided Barcode Scanning Tunnel

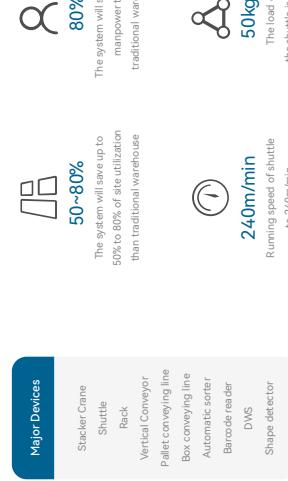
### ■ Functions: dynamic code reading of large parcels

- Large parcel 6-sided barcode scanning tunnel takes 20 million high-resolution intelligent area scan camera as and 8-line scan fixed-focus scan cameras as the core components, which can complete the dynamic barcode recognition of the front, rear, left, right, top and bottom sides of the express parcel.
- The system is widely used in large-scale sorting scenarios.



# OPTIMIZE EACH STEP

Wayrm industry 4.0 intelligent warehousing integrated solution is based on the construction of "standardization, automation, information, intelligence and interaction" of warehousing, and applies new technologies such as the Internet of Things and mobile AGV, optimizing the warehouse management system, to build an industry intelligent unmanned warehousing logistics center that meets multi-industry applications.



## Stacker Crane

The Stacker Crane is an aisle type stacking device designed with pallets, totes, etc. as access units, which can be operated in manual semi-automatic and fully automatic modes to achieve batch storage and retrieval of goods. As the core device of the whole automated warehouse, it is suitable for various heights of conventional, high temperature, cold storage, new energy and other automated warehouses.



| Technical Item                        | Pallet   | Stecker Crane | Tote   | Stecker Crane |
|---------------------------------------|----------|---------------|--------|---------------|
| Stacker height(m)                     | 40       | 20            | 20     | 20            |
| Maximum moving speed(m/min)           | 200      | 300           | 300    | 300           |
| Maximum lifting speed(m/min)          | 60       | 100           | 100    | 100           |
| Fork no-load speed(m/min)             | 60       | 60            | 60     | 60            |
| Fork full-load speed(m/min)           | 30       | 40            | 40     | 40            |
| X/Z direction addressing accuracy(mm) | ±3       | ±3            | ±3     | ±3            |
| Loaded capacity(kg)                   | 100-5000 | 50-100        | 50-100 | 50-100        |

## Rail Guided Vehicle

The RGV is a rail guided automatic running vehicle. Under the system's deployment, RGV can automatically carry cargo units and transport cargos from one location to another, enabling one-to-many multi-port to multi-port material transfer.



| Technical Item           | Parameters                                      |
|--------------------------|---|
| Running speed(m/min)     | 5-180   |
| Conveying speed(m/min)   | 5-30  |
| Cargo unit weight(t/g)   | 50-6000   |
| Positioning accuracy(mm) | ± 5   |
| Number of handling units | Multi-direction                                 |
| Voltage                  | 380V, 50Hz                                      |
| Positioning method       | Laser absolute positioning, barcode positioning |
| Power supply method      | Insulated conductor rails                       |

## Four-way Shuttle

The four-way pallet shuttle is one of the most popular intelligent handling devices in the industry, integrating four-way driving, in-situ rail change, automatic handling, intelligent monitoring and traffic dynamic management and other multi-functions. Material warehousing management tasks are issued according to the MES or ERP system of the smart factory.



| Technical Item                          | Parameters            |
|---|-----------------------|
| Length/width(mm×mm)                     | 1200×1000(customized) |
| Maximum running speed(m/min)            | 120                   |
| Maximum acceleration(m/s <sup>2</sup> ) | 0.3                   |
| Maximum load(kg)                        | 1600                  |
| Positioning accuracy(mm)                | ±1                    |

## Fork AGV

The fork AGV is an intelligent handling device for the logistics flow of goods on the ground pallets. It consists of natural environment laser navigation system, steering wheel traction and steering drive system, hydraulic lifting system, safety system and power supply system. It has high navigation precision and reliable performance, cost-effective characteristics, etc.



| Technical Item                  | Parameters                      |
|---------------------------------|---------------------------------|
| Rated running speed(m/s)        | 1.5(m/no load)/1.2(m/full load) |
| Repeat positioning accuracy(mm) | ±10                             |
| Fork lifting speed(m/s)         | 170(m/no load)/115(m/full load) |
| Fork lowering speed(m/s)        | 125(m/no load)/160(m/full load) |
| Minimum turning radius(mm)      | 1130                            |
| Stacking height(mm)             | 16 / 3                          |
| Stacking lane width(mm)         | 1895                            |
| Rated load(g)                   | 1400                            |
| Movement mode                   | Steering wheel                  |
| Navigation mode                 | Laser navigation                |

## SYNERGIZE EACH OPERATION

# E-commerce Retail Warehousing & Distribution Integrated Solution

Wayzin e-commerce retail warehousing and distribution integrated solution is based on the warehouse and completes the seamless integration of warehousing, transportation and distribution with the support of the information system.

**High Density Storage**  
Wayzin flexibly combines and applies the self-developed intelligent handling devices such as stacker and shuttle, etc. to transport the goods required for an order to the manual picking area, where operators pick manually according to the dispatching instructions from the WCS system, which is more efficient and accurate.



**Automated Put Wall Picking**  
The Automated Put Wall Picking system is an efficient and low-cost solution for e-commerce and retail enterprises dealing with large order volumes for secondary sorting by picking order.



**Goods-to-Person Picking**  
Goods-to-Person picking uses intelligent handling devices such as stacker and shuttle, etc. to transport the goods required for an order to the manual picking area, where operators pick manually according to the dispatching instructions from the WCS system, which is more efficient and accurate.



**Intelligent Sorting**  
Wayzin can provide customized sorting solutions for different e-commerce retail enterprises' business processes, goods, order volumes and warehouse capabilities, improving productivity, throughput, transportation accuracy and other indicators.



**Warehouse and Distribution Integrated Solution**  
Warehousing and distribution integration is a logistics form that is based on the warehouse and completes the seamless connection of warehousing, transportation and distribution with the support of the information system. Such a one-stop solution saves storage and transportation costs, improves inventory turnover, and maximizes cost reduction and efficiency.

