



Moving solutions with safety, reliability and efficiency

# MATERIAL HANDLING SYSTEM



## HYUNDAI ELEVATOR CO., LTD.

### HEAD OFFICE & FACTORY

San 136-1, Ami-ri, Bubal-eup, Icheon-si, Gyeonggi-do 467-734, Korea  
Tel : 82-31-644-5160 Fax: 82-2-745-4227  
Homesite : <http://www.hyundaelevator.co.kr>  
E-mail : [e-biz@hyundaelevator.co.kr](mailto:e-biz@hyundaelevator.co.kr)

### SEOUL OFFICE (INT'L SALES DIV.)

1-83 Dongsung-dong, Jongno-gu, Seoul 110-510, Korea  
Tel: 82-2-3670-0834 Fax: 82-2-3672-8763-4

### HYUNDAI ELEVATOR INTERNATIONAL SALES & SERVICE NETWORK

#### PHILIPPINES

Hycor Industrial Sales Corp.  
#81 Kapiligan Cor. Bayani St., Brgy.  
Dona Imelda, Quezon City, Philippines  
Tel: 63-2-716-0905 Fax: 63-2-714-8896

#### INDONESIA

PT. Superhelindo Jaya  
JL. KH. Moch. Mansyur No 19B,  
Jakarta 10140, Indonesia  
Tel: 62-21-631-8444 Fax: 62-21-632-6288

#### THAILAND

Loxley Public Co., Ltd.  
Construction Materials Department  
102 Na Ranong Rd, Klongtoey,  
Bangkok 10110, Thailand  
Tel: 66-2-348-8000 Fax: 66-2-240-3127/3128

#### BANGLADESH

Regional Traders Ltd.  
Karim Chamber(3rd Floor)99,  
Motijheel Commercial Area  
Dhaka-1000, Bangladesh  
Tel: 880-2-956-3122 Fax: 880-2-956-7377

#### INDIA

Kinetic Escalator & Elevator Ltd.  
G-92, D- III Block, Midc, Chinchwad, Pune-411.019 India  
Tel: 91-20-3950-2190-1 Fax: 91-20-2747-0568

#### PAKISTAN

Islamabad Industrial & Trading Corp.  
205 Amber Estate Shakra-e-faisal,  
Karachi - 75350, Pakistan  
Tel: 92-21-432-0601-5 Fax: 92-21-432-0617

#### EGYPT

International Eng. & Trade  
10 El Hakam St., Helmeyt El Zayton Cairo, Egypt  
Tel: 20-2-2241-8542 Fax: 20-2-2639-2672

#### U.A.E.

Arabian Elevators & Engineering Co., Ltd.  
P. O. Box : 26031, Sharjah, U.A.E.  
Tel: 971-6-573-9920 Fax: 971-6-573-0962

#### KUWAIT

Deal General Trading & Contracting Co.  
P. O. Box 27956 Safat, 13140 Kuwait  
Tel: 965-245-7925 Fax: 965-242-3510

#### JORDAN

Bseiso Engineering Materials Corp.  
P. O. Box 830681 Amman 11183, Jordan  
Tel: 962-656-99012 Fax: 962-656-99014

#### IRAN

Mehfakhr  
Flat No. 84 8th Flr. No. 23 Corner of 13th St.  
Asadabadi Ave. Tehran Iran  
Tel: 98-21-872-6082 Fax: 98-21-855-3741

#### SAUDI ARABIA

- ETA-Electromechanical & Technical Associates,  
Al Murjan Tower, 11<sup>th</sup> Floor, Suite #1104,  
Hail Street and Waly Al Ahd Street Intersection,  
P. O. Box 6591, Jeddah-21452, Saudi Arabia  
Tel: 966-2-652-9000 Fax: 966-2-652-9090
- Ahmed Gharamallah Al Ghamdi & Sons Co., Ltd.  
16TH Cross Haneen Center, King Abdul Aziz Road,  
P.O.Box 1039, AlKhubar 31952, Saudi Arabia  
Tel:966-3-898-7556, Fax:966-3-895-3411

#### QATAR

International Eng. & Trade Group Co.  
P. O. Box NO.22549 Doha, Qatar  
Tel: 97-4-436-6689 Fax: 97-4-556-8842

#### ALGERI

Flash Engineering & Trade  
03 Rue Saidi Ahmed-Bordj El Kiffan Palace Center, Alger, Algeri  
Tel: 213-21-203785 Fax: 213-21-216444

#### TUNISIA

Ascenseurs Levage & Manutention(ALM)  
Rue Abderrahmen Ibn Aouf Cite Uv4 Bloc 49-1004 Menzeh 6 tunis - Tunisie  
Tel: 216-71-236-373 Fax: 216-71-754-361

#### PANAMA

Elevadores De Panama S.A.  
Via Ricardo J. Alfaro, Diagonal Hospital S.M. Arcangel Republic of Panama  
Tel: 507-230-3166 Fax: 507-230-3187

#### GUATEMALA

Elevadores Otis S.A. De C.V.  
17 Calle 14-53 Zona 13 Guatemala City, Guatemala  
Tel: 502-2381-7600 Fax: 502-2381-7676

#### CHINA

#### \* Shanghai Hyundai Elevator Manufacturing Co., Ltd.

- Head Office(Factory)  
Zhenxi Nanlu No.182, Liantang Zhen, Qingpu Qu,  
Shanghai China 201716  
Tel: 86-21-5981-3981/3990/3961/3971 Fax: 86-21-5981-3982
- Shanghai Office  
27F, Jinxuan Bldg., No.238 Nandan Rd(East),  
Shanghai, China, 200030  
Tel: 86-21-6427-6616/9569 Fax: 86-21-6427-4428







# Logistics is competitiveness

Corporate competitiveness is started from Logistics (strategic distribution) Based on abundant experience in various industries. Hyundai Elevator can create corporate competitiveness by providing best solution of material handling system.

Material Handling System



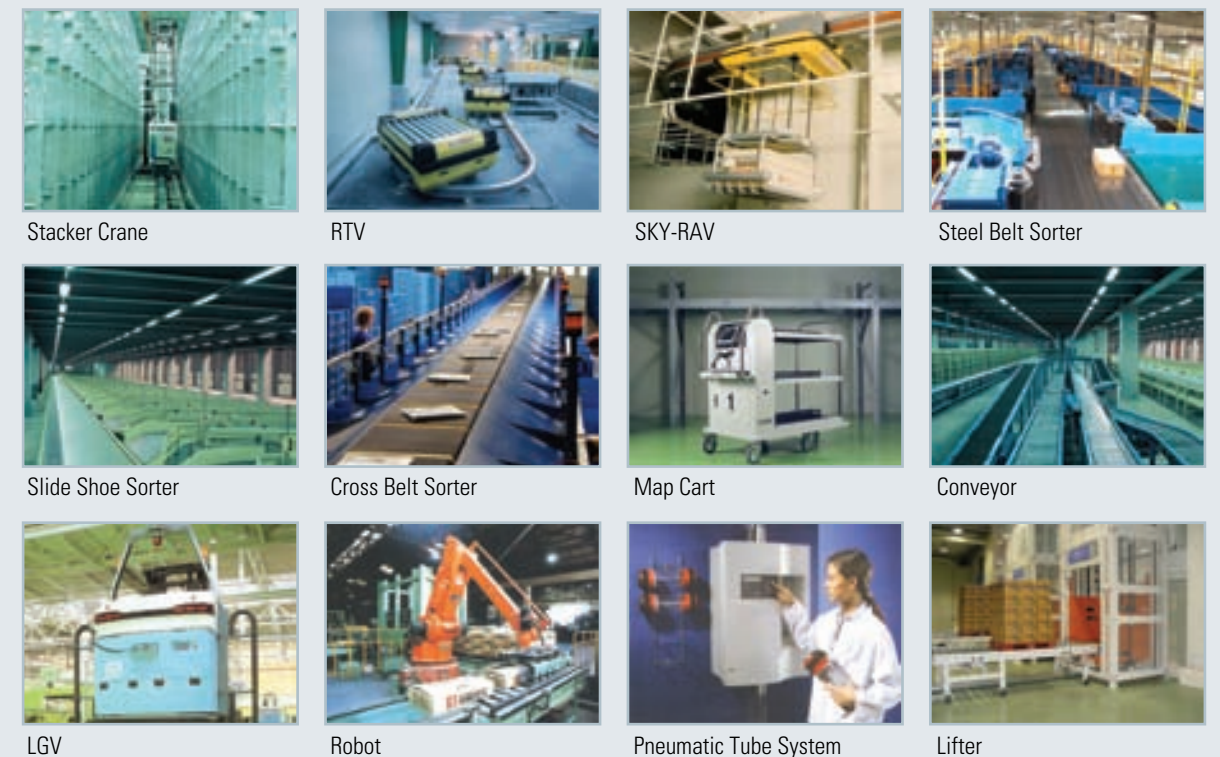
## History

- 1984. 5 Hyundai Elevator Co., LTD. established
- 1989.10 Established Material Handling System Division
- 1995. 9 Grand prize of Customer Satisfaction & Management Innovation by K.M.A.C awarded
- 1996.12 Certificated After Service Certification from the Ministry of Trade and Commerce
- 1998. 3 Certificated ISO 9001 and ISO 14001 Certification from DNV for material handling system
- 2003.12 Certificated Best After Service Certification from the Ministry of Trade and Commerce
- 2005.12 Certificated CE Mark for material handling system from TUV
- 2006.10 Certificated Korea Productivity Award from Productivity Center

## Business Area



## Equipments







# Total Solutions for Movement

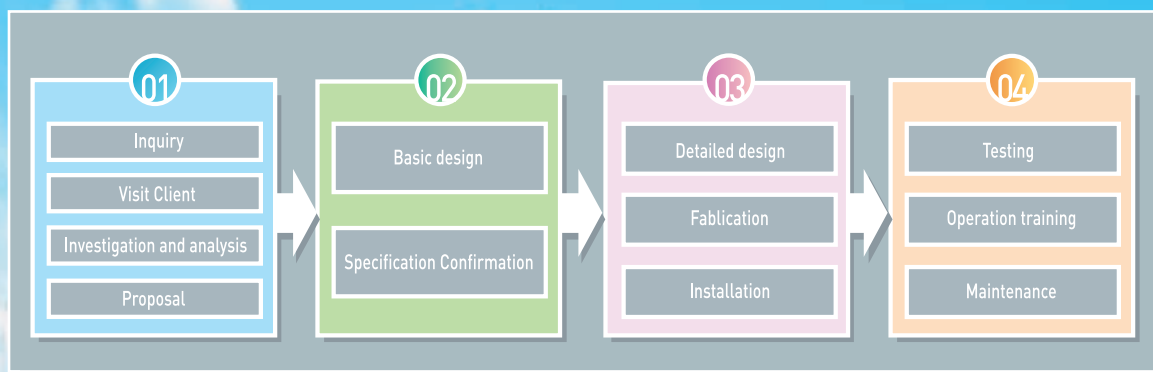
We provide optimized material handling system solutions by total engineering covers consulting, system engineering, fabrication, installation and maintenance service.



Material Handling System

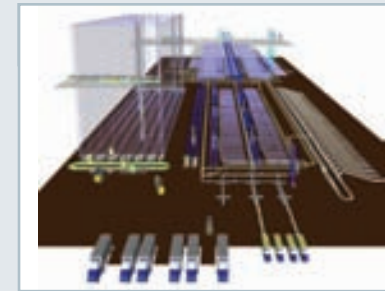


## Project Process



### Consulting

Providing integrated system solution with rational improvement line by searching and analyzing for present problems through corporate management plan and future market estimation. Our leading consultants will response to your request for related standards, maintenance guide line and optimized solutions.



### System Engineering

Performing basic engineering to meet customer needs with practicable system layout in reasonable cost and limited delivery terms. Extracting best solution from multi research with layout, equipment specification, IT system, simulation and other requirements.



### Fabrication & Installation

Integrating suitable equipments according to detailed design on the basic engineering. Performing fabrication, installation, commissioning and training under the thorough project management with actualized schedule.



### Maintenance Service

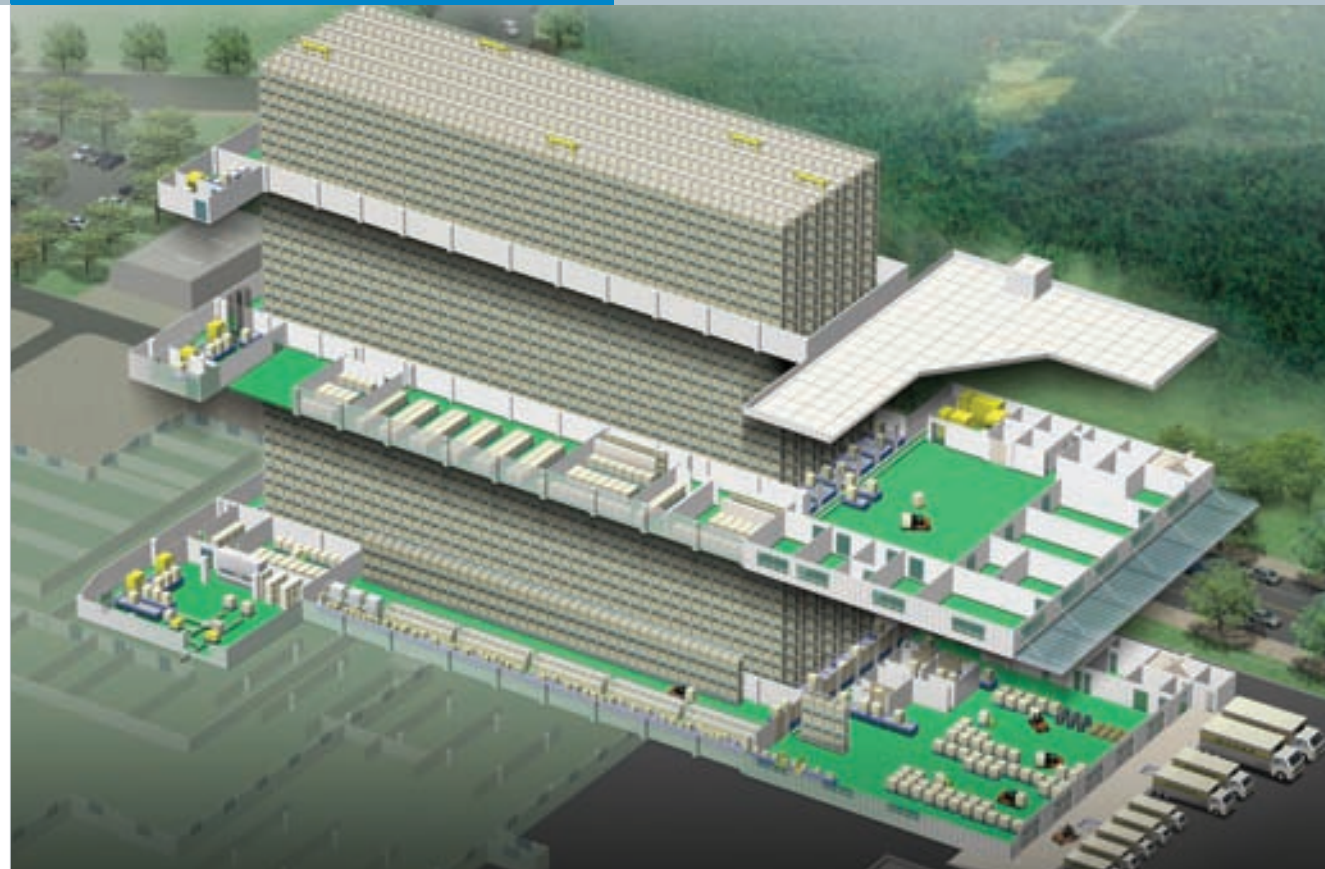
Executing preventive inspection and maintenance training service during the warranty period. Realizing stable system operation by prompt recovery through dispatching specialist after counter measuring and analyzing the occurrence in response to urgent call.





# Automated Storage & Retrieval System

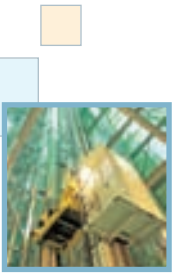
Enlarging storage capacity by saving space with high-rise warehouse building and by applying automated picking facilities. Realizing high efficiency with automated handling equipment and computerized control system.



## Advantage

- Smaller foot print by high-rise storage building
- Improving working environment and reducing men power
- Real time accurate inventory management
- First-in, First-out for the request order
- Enlargement of counter planning with timely checking of long term and shortage of inventory

Material Handling System



## Classification

- Type of items
  - Finished goods (general food, cold food, pharmaceuticals, hazardous materials, etc )
  - Semi products (raw material, chemicals, etc )
  - Parts (automotive parts, tools and material for construction, etc )
- Type of load
  - Pallet
  - Box or Bucket
- Type of rack
  - Unit Rack
  - Rack Building



● General goods storage



● Food storage (cold storage)



● Pharmaceuticals storage



● Chemicals storage



● Automotive parts storage



● Hazardous material storage





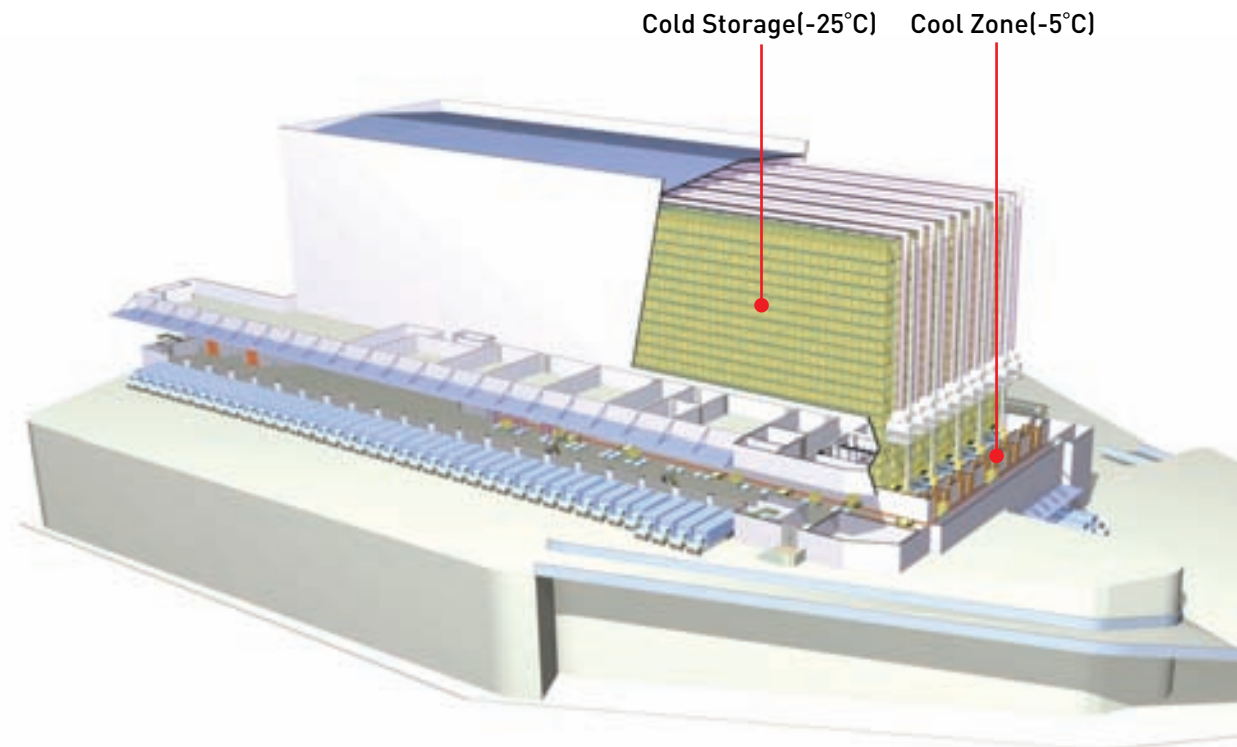
# AS/RS

## Application 1 Cold Storage

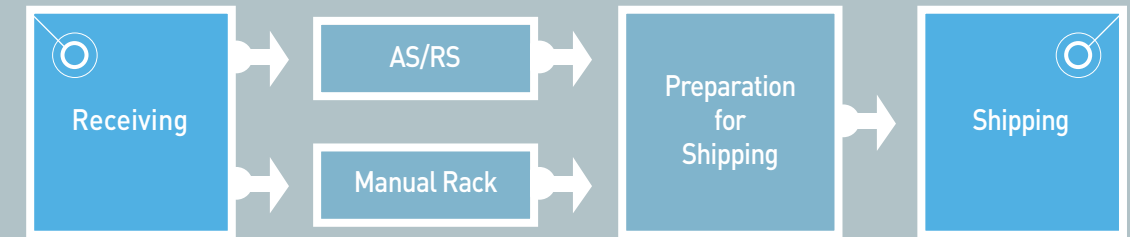
Automated storage and retrieval system under extreme environment with -25°C could provide high efficiency of storage capacity and energy savings.



Material Handling System



### Material Flow



### Maintenance cage

Cage for maintenance enables safe and simple inspection against error of stacker crane and/or error of load in rack.



● RTV for In & Out



● Conveyor- I for In & Out



● Conveyor- II for In & Out



● Arrival & Departure (Overhead Door)

### Main Equipment

- Stacker crane for cold storage
- RTV
- Storage rack



● Stacker Crane for cold storage

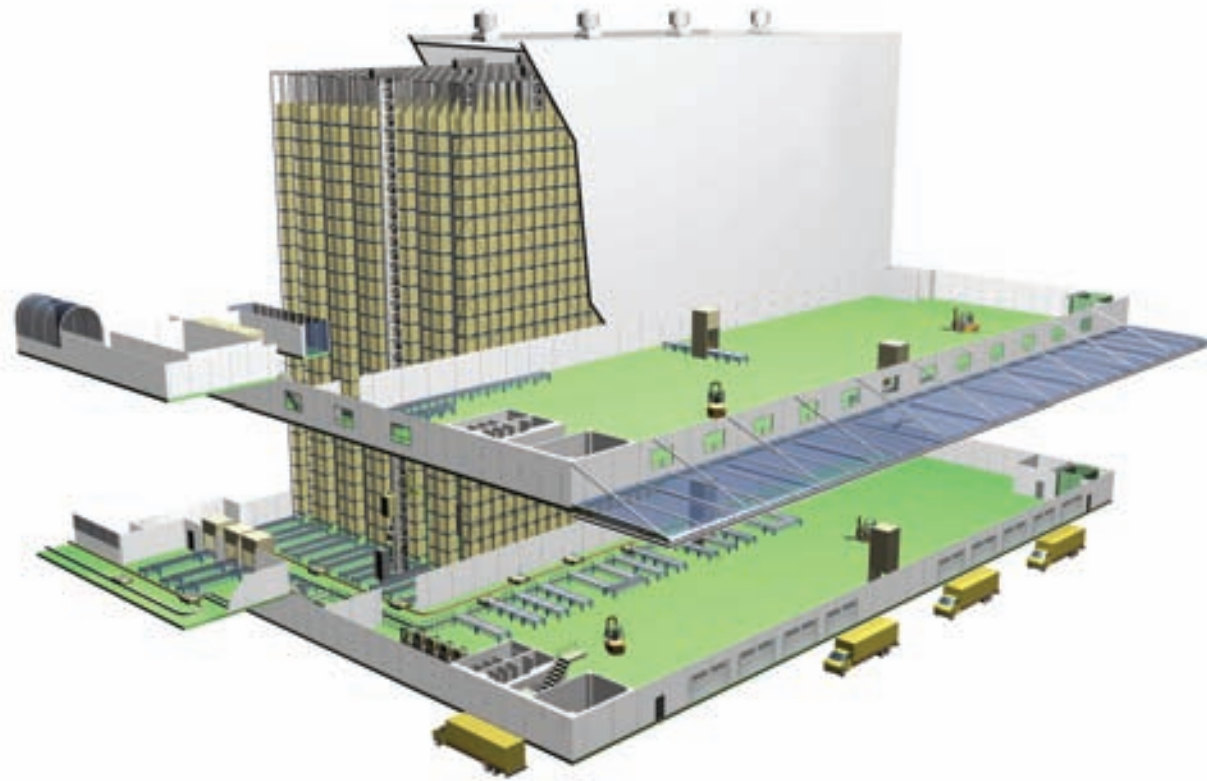


# AS/RS | Application 2 Food storage

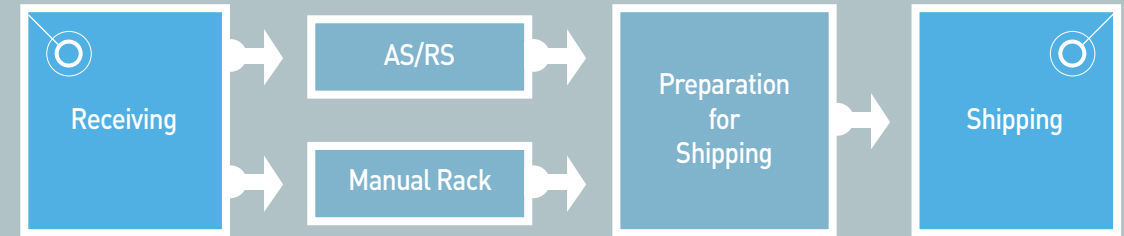
Executing efficient distribution and storage of food with the integrated warehouse management system, high-rise AS/RS with 50mH, manual rack and RTV system for In & Out put.



Material Handling System

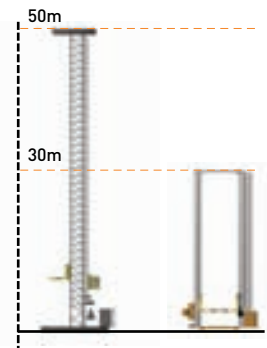


## Material Flow



## Feature of 50mH Stacker Crane

- 1 Advanced technology with high speed, high capacity and high rise
- 2 Two drive application for upper and lower position of travel
- 3 Light weight by single mast with truss type
- 4 Support structure reducing stress of mast
- 5 Application of laser sensor for positioning
- 6 Application of shock absorber
- 7 Maintenance cage for convenient maintenance



## Main Equipment

- Stacker crane (50mH)
- RTV
- Manual rack
- Vertical lifter
- Conveyor



● Stacker Crane (50mH)



● RTV for In & Out



● Vertical Lifter



● RTV between buildings



● Conveyor for departure





# AS/RS

## Application 3 Pharmaceutical Storage

GMP corresponding AS/RS, manual rack, washing machine for pallet, sample room equipment and integrated warehouse management system provide total solution of storage, distribution and returns for pharmaceutical industries.



### Main Equipment

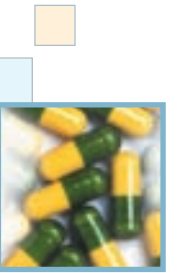
- Stacker crane
- RTV
- Map cart
- Washing machine for pallet
- Manual rack
- Light weight rack
- Lifter

### Basis of GMP

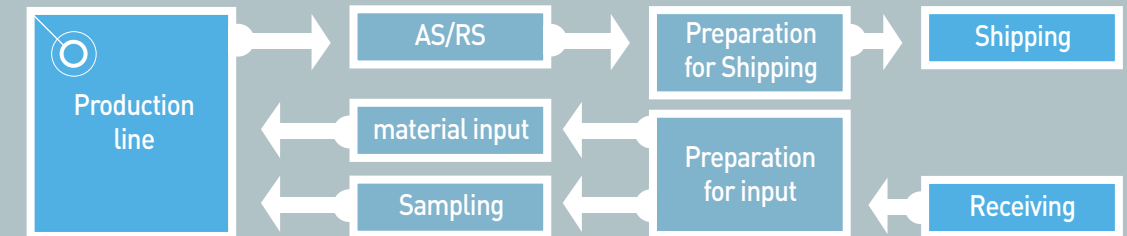
- 1 Storage area : Light Black
- 2 Transfer area : Gray Zone
- 3 Production area : White Zone
- 4 Arrival & departure area : Not Classified



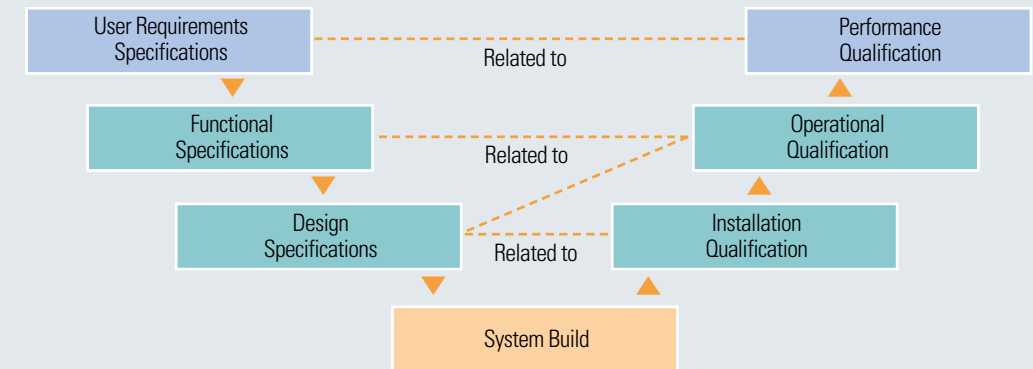
Material Handling System



### Material Flow



### Validation Process



● Stacker Crane



● RTV for In & Out



● Size Checker



● Map Cart

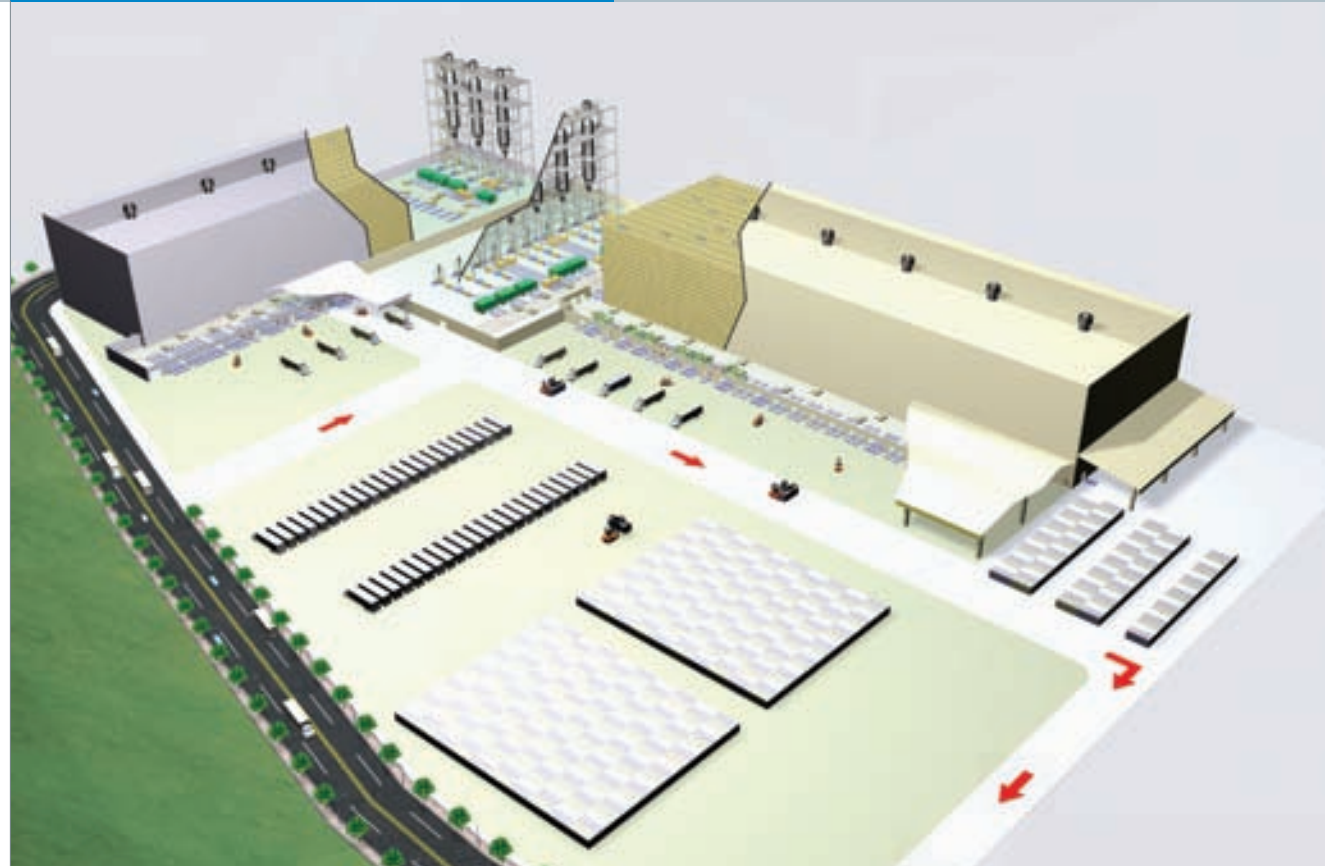




# AS/RS

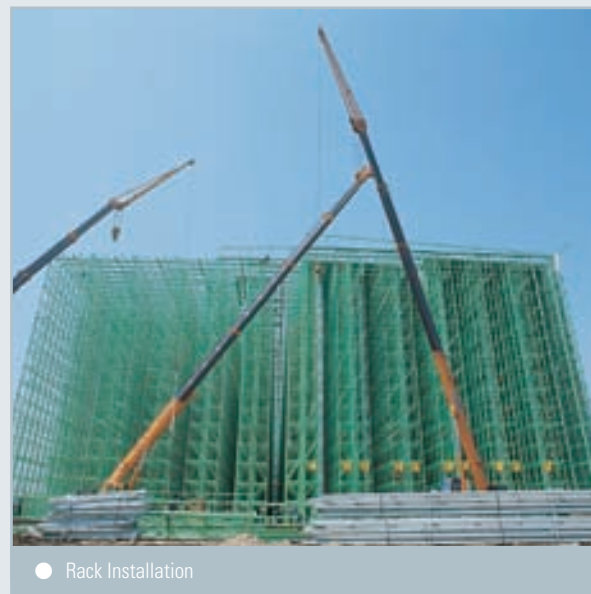
## Application 4 Petrochemical Storage

AS/RS with high efficiency twin type stacker crane, bagging machine, palletizer and RTV system for in & out put. Integrated warehouse management system realize well organized warehouse management from production to distribution.



### Main Equipment

- Stacker crane
- RTV
- Bagging machine
- Palletizer
- Wrapping machine
- Pallet loading machine

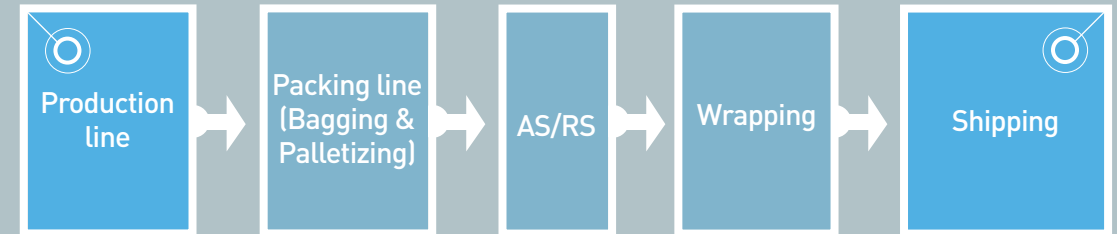


● Rack Installation



Material Handling System

### Material Flow



● Bagging System



● Automated Palletizer



● RTV (Twin Type)



● AGV



● Pallet Loading Machine



● Wrapping Machine

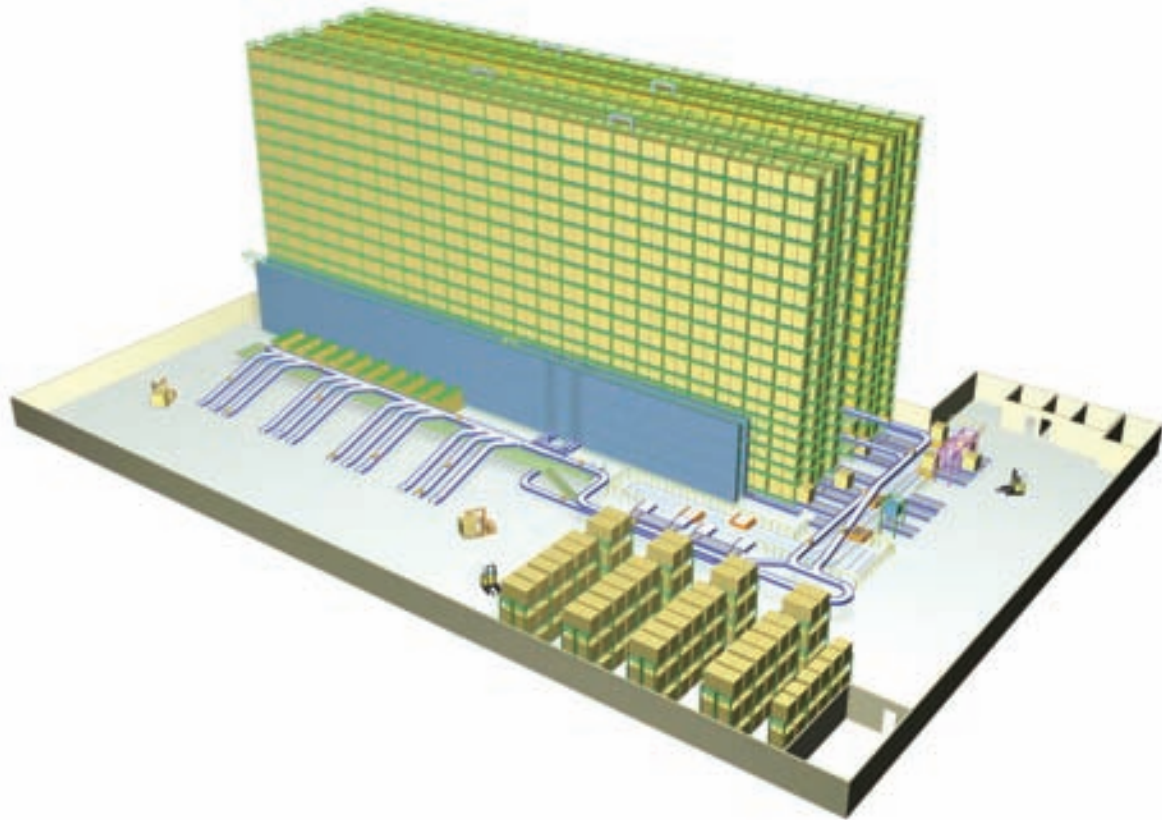




# Distribution Center



Material Handling System



Realizing accurate and prompt delivery service by well organized distribution center.

Providing optimized solution based on the various solution providing experiences for necessities, pharmaceuticals, publications, door to door deliveries, garments and etc.

Systemized sorting system can accommodate various typed and weighted loads effectively. Supporting executive of sorting system will be provided with excellent engineering capability and with advanced technology.



## Publications

AS/RS, pallet rack, bucket rack, publications storage providing total solution for storage, delivery, returns and distribution information through well organized systems with piece sorter, parcel sorter, picking and grouping equipment



## Door To Door Service

Targeting prompt and safe delivery of goods. Simple structurized and maintenance-less steel belt sorter could be the best solution for the distribution center of door to door service industrials. Various types of sorters such as slide shoe, cross belt type could be provided along with.



## Garments

Providing featured trolley conveyor system for garment, digital picking system for accurate picking and well harmonized distribution system.





# Distribution Center

## Application 1 Publications

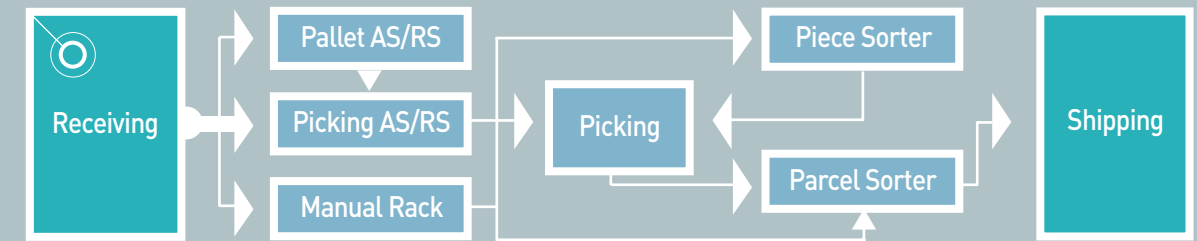
AS/RS, pallet rack bucket rack, piece sorter, parcel sorter, DPS, RF system and integrated warehouse management system handle the total distributions covers storage, groups, returns and distribution information.



Material Handling System



## Material Flow



● Piece Sorter



● Pallet AS/RS



● Parcel Sorter



● Picking AS/RS (Side Picking)



● RTV In & Out



● DPS System



● Lifter



● Packing Line

## Main Equipment

- Stacker crane
- RTV
- Piece sorter (Open tray type)
- Parcel sorter (Slide shoe type)
- Pallet rack
- Light weight rack
- DPS system
- Lifter
- Telescopic conveyor



● Map Cart



● Telescopic Conveyor





# Distribution Center

## Application 2 Door To Door Service

Steel belt sorter is corresponding to the target, delivery customer goods on time safely, simple structure and maintenance-less. Steel belt sorter is suitable equipment for the door to door service logistic center quick returns on time delivery service.



### Main Equipment

- Steel belt sorter
- Telescopic conveyor
- Camera type BCR
- Discharge chute
- Merge conveyor
- Manual conveyor
- Volume checker

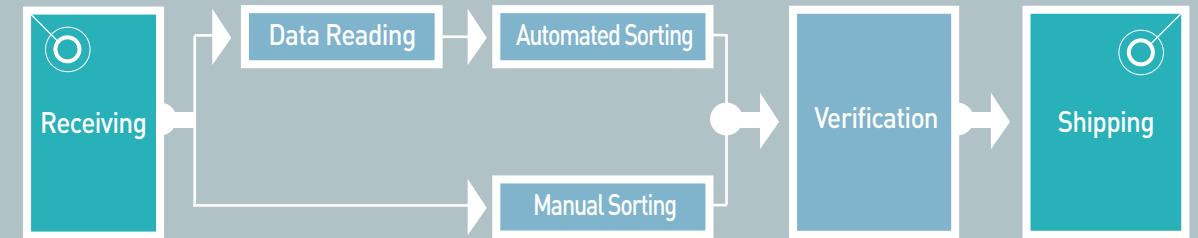


● Steel Belt Sorter

Material Handling System



### Material Flow



● Telescopic Conveyor



● Merging Equipment



● Data Reading



● Discharge Chute



● Induction Conveyor



● Input Conveyor



● Spiral Conveyor





# Distribution Center

## Application 3 Garments

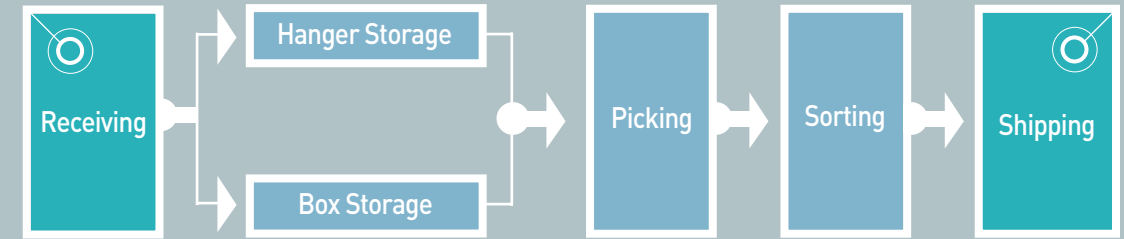
Featuring the garment, providing DPS for accurate picking together with trolley conveyor system that transfer between floors and grouping the garments.



Material Handling System



### Material Flow



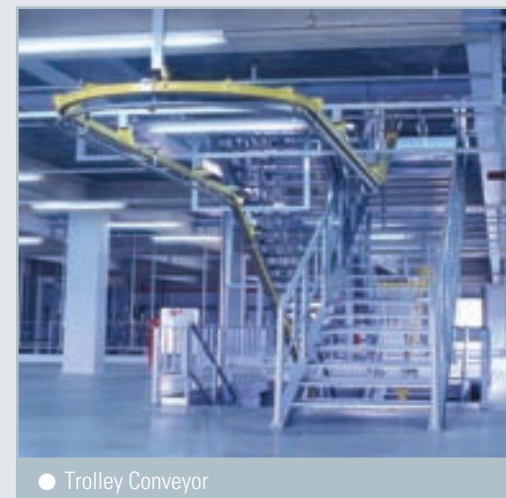
● Trolley Hanger

### Main Equipment

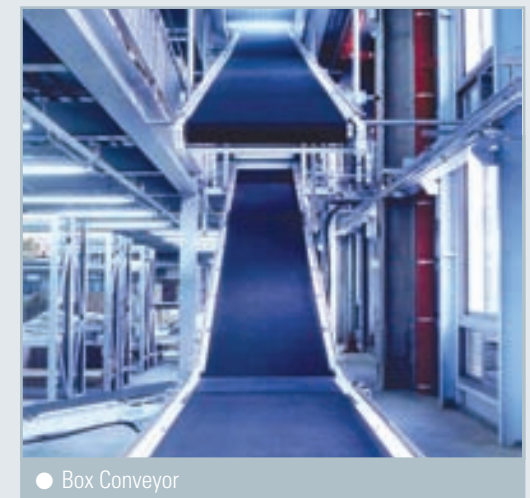
- Overhead conveyor
- Trolley conveyor
- DPS system



● DPS System



● Trolley Conveyor



● Box Conveyor



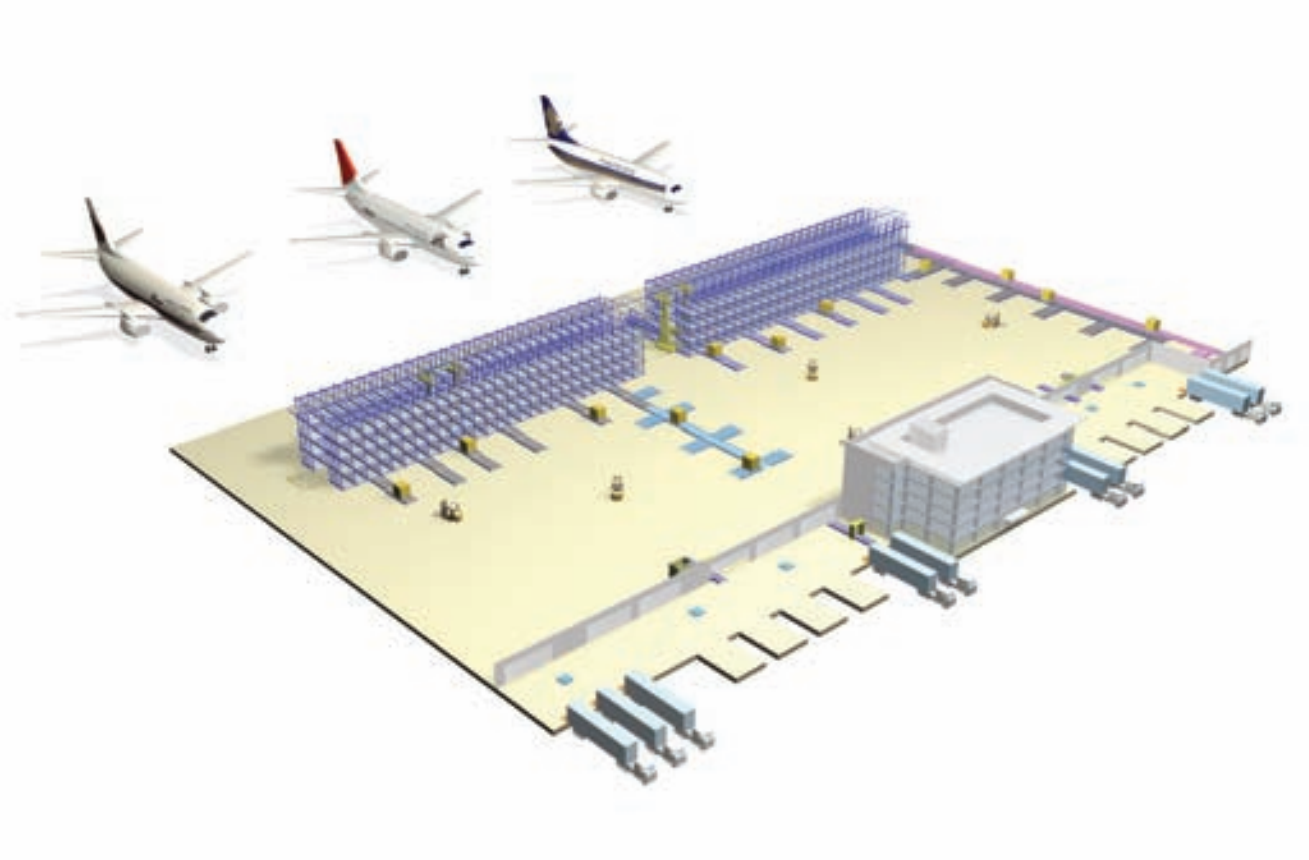


# Air Cargo System

For endless operation, highly credible and reliable terminal management system is essential. To realize it, Total Air Cargo System Solution will be provided with development of optimistic To-Be model, multi-Interface system, stable and reliable IT system and high capacity handling equipment.



Material Handling System



● Dual Rail Type ETV



● Single Rail Type ETV



● ETV Rack & Workstation



● TV & Workstation



● Cold & Valuables Storage

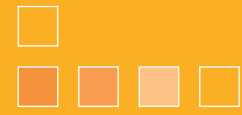


● Baggage Handling System



● Parcels Handling System





# IN-Process Automation

Optimized solution for in-process automation will be provided based on plentiful experiences for various industrials.

- Speedy handling of throughput can make smooth connection between processes.
- High reliable equipment application will secure safe system operation.
- Operation solution and quantity of required equipment are verified by 3D simulation.



● Unit Rack AS/RS



Material Handling System

## Classification



● RTV (Robotic Transfer Vehicle)



● SKY RAV (Overhead transportation system)



● AGV (Automated Guided Vehicle)



● LGV (Laser Guided Vehicle)



● Robot



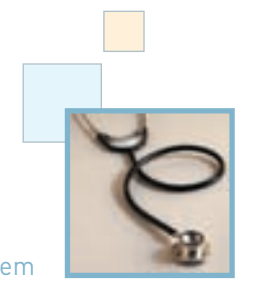
● Lifter





# Building & Hospital Automation

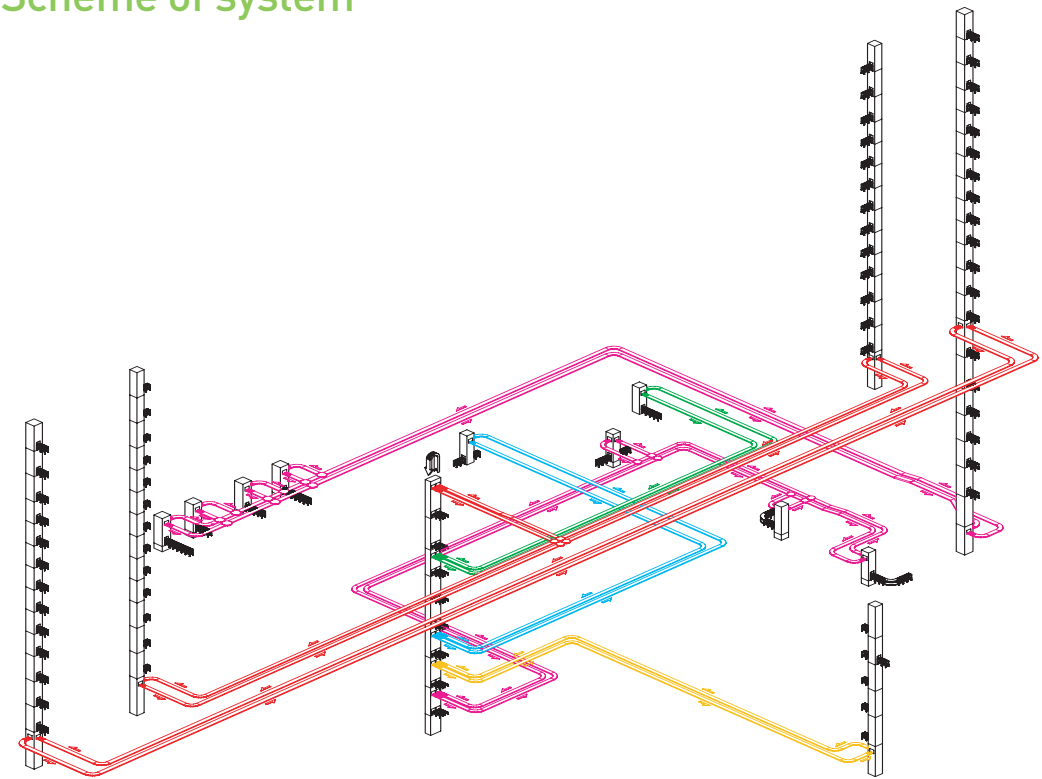
Transfer system for Building & Hospital Automation to be equipped fast, correct and noiseless transfer system organized with trace and management system.



Pneumatic tube system improves work efficiency at hospital, frequent transportation of documents, samples, small materials, medicines and etc.



## Scheme of system



● Station Conveyor

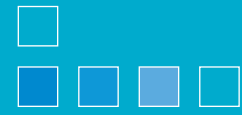


● Air Tube System



● Air Blower



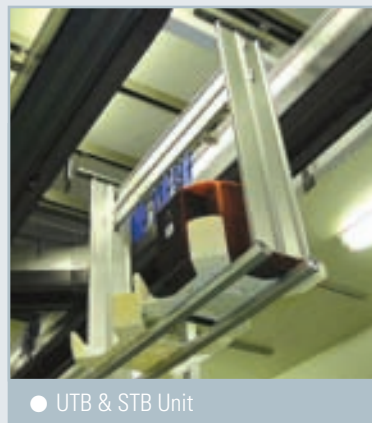


# Clean Room System

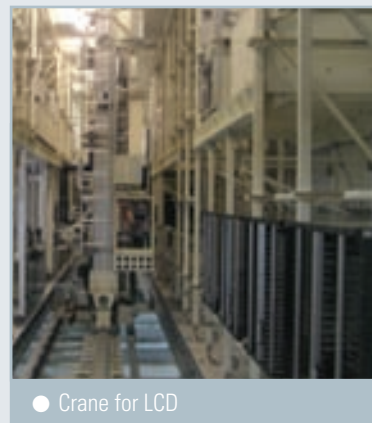
Actualizing In-Line-zation of production line connected to clean depot. Transfer system minimizes lead time of transfer from process to process and also accomplishes mass transfer.



● AGV



● UTB & STB Unit



● Crane for LCD



Material Handling System



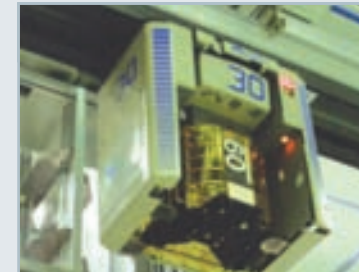
## Clean Depot (Stocker)

Clean Depot is an optimal storage for exclusive cassette in clean room. Achieving unmanedization and dust-proof for the production line in exhaustively managed clean room.



## RGV (Rail Guided Vehicle)

Securing highest reliability by performing high speed travel and feeding with simplified structure.



## OHT (Over Head Hoist Transfer)

As an automated overhead transfer system transferring between inter-intrabay and effectively in clean room utilizing space effectively in clean room.



## OHS (Over Head Shuttle)

Reducing lead time of transfer with high speed installed at the upside of clean room. This reliable system has simple structure.