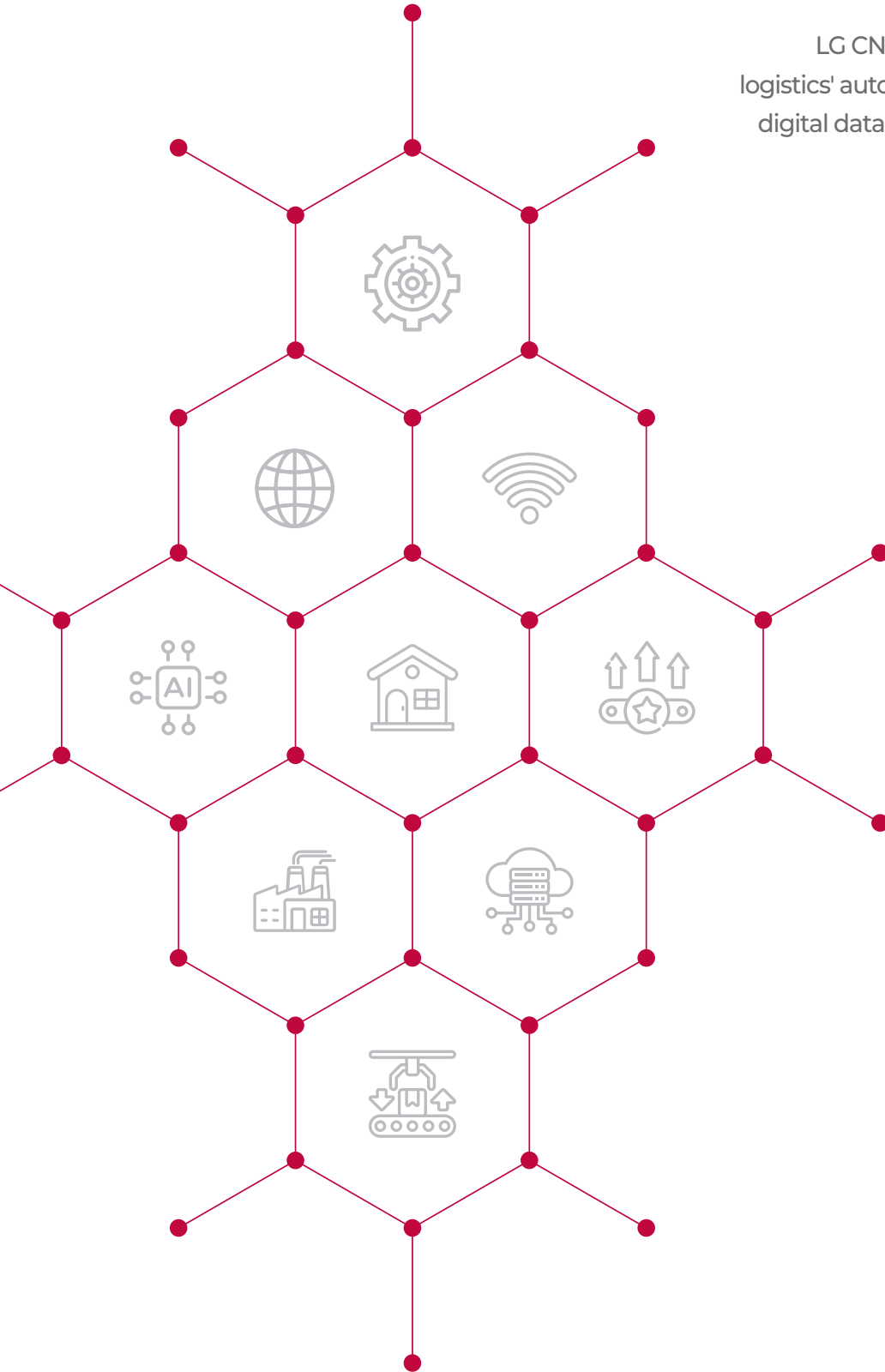


Smart Logistics Solutions

LG CNS is leading the intellectualized logistics' automation market by introducing digital data warehouses with optimization between DX and equipment



LG Group Overview

LG's management philosophy embraces "Creating Values for Customers" and "People-oriented Management" as the company's main operating principles.

History

Lucky Chemical Co., Ltd.
Founded(Present day LG Chem)



1947
-
1958

Goldstar Co., Ltd. Founded
(Present day LG Electronics)

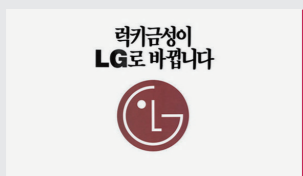


Goldstar Co., Ltd. Founded
(Present day LG Electronics)



1987

Group CI changed



1995
-
2003

LG Corp.
(Holding company) founded



75th Anniversary of LG



2022

*As of 2022

Key Figures



Sales

USD 132.6 billion
(KRW 192 trillion)



Employees

270,000 people



Affiliates

63 affiliates

Groups



Electronics Industry

Including LG Electronics, LG Display, LG Innotek, etc.



Chemicals Industry

Including LG Chem, LG Energy Solution, LG Household & Health Care, etc.



Communication & Services Industry

Including LG CNS and LG Uplus, LG Hello Vision, GIIR, D&O, LG Mgmt. Development Institute, LG Sports, etc.

LG CNS

Our Journey

From IT service specialist to DX Leader

Since 1987, LG CNS has been at the vanguard of South Korea's remarkable technological advancement

(As of January 2024)

IT specialist

(established in 1987 as a JV with EDS)



38 years

Revenue

('20-'23 CAGR : 18.6%)



USD 4.0 billion

(KRW 5.61 trillion)

Profit

('20-'23 CAGR : 23.6%)



USD 320 million

(KRW 464 billion)

Revenue Generated from Global Markets



19.0%

Employees



7,000+

Overseas employees



1,200+

Number of Patents



426

Number of Software Copyrights



1,323

Smart Logistics

Providing integrated services from logistics consulting to engineering, center deployment and operation

Domestic logistics Automation market

No.1

Core Competencies

01

Maximization of customer value at distribution centers with innovative layouts based on verified automation solutions

02

Leading intellectualization / optimization of logistics by combining AI algorithms and automation equipment

03

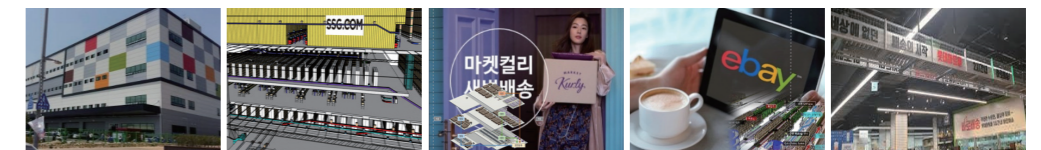
A logistics DX expert group and an organization dedicated to logistics robots

Services



Reference

Big 5 E-Commerce Company in Korea



coupang S SSG.COM MARKET Kurly ebay LOTTE GLOBAL LOGISTICS

Korea Top 3 Major Courier Company



LOTTE GLOBAL LOGISTICS CJ LOGISTICS HANJIN

Major 3PL & Manufacturer's



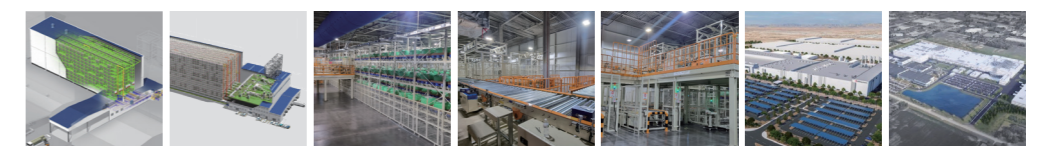
CJ LOGISTICS LX Pantos LG H&H LG Chem

Successful Cases of overseas implementation



POS Laju POS MALAYSIA E-LAND CHINA

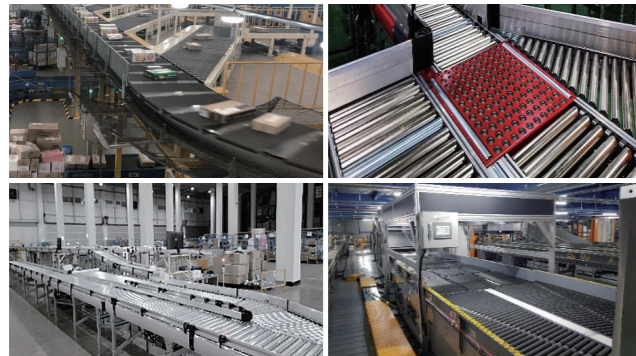
Global Smart Factory References



LG Electronics LG Display LG Innotek LG Chem LG Energy Solution

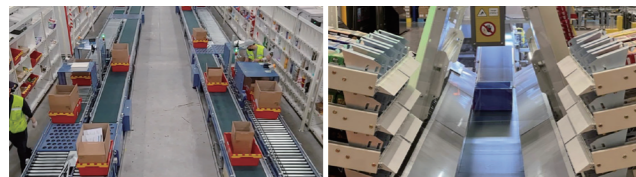
Solution Lineup

Sort/Transfer



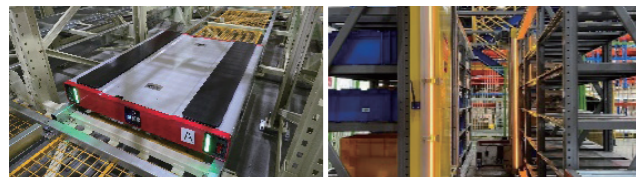
- **Crossbelt Sorter** · Smart Singulator
- Tilt Sorter · Line Belt Sorter
- Wheel Sorter · Rotary Sorter
- **Smart Conveyor** · Sorting Robot

Picking



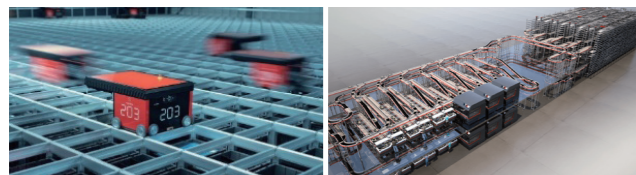
- QPS · Auto Picking System
- Smart Gantry · DPS/DAS

Storage



- 3D Mobile Shuttle · MLS
- AS/RS · Mini-Load
- MDPS

Partner



- QPS · Auto Picking System
- Smart Gantry · DPS/DAS

Smart Logistics Platform

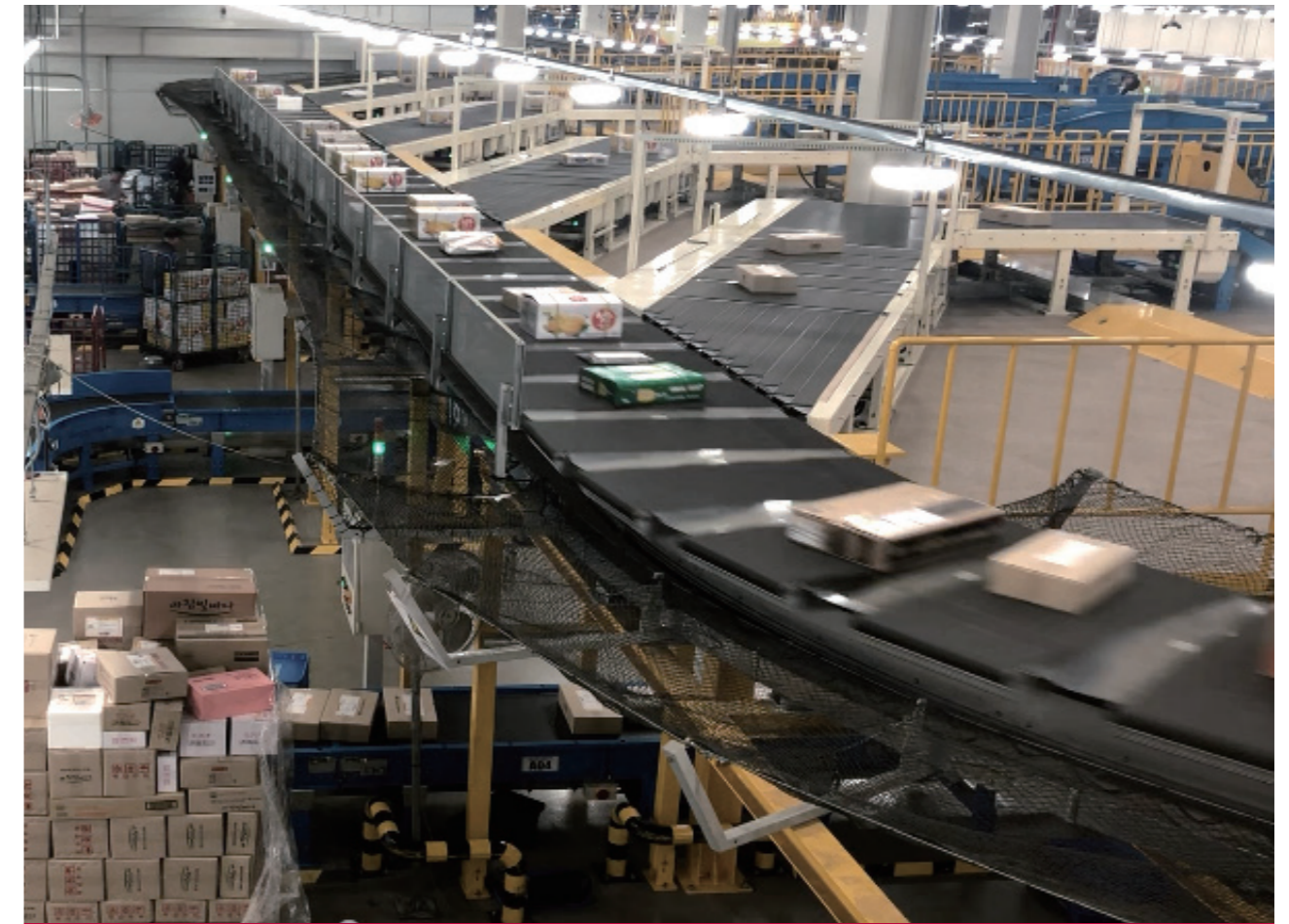
AI Service

RaaS

[Fast, Efficient and Reliable]

Crossbelt Sorter

State-of-the-art facility offering fast and accurate parcel sorting for various industries.



Key Points



Performance

High-performance sorting system with throughput of more than 25,000 parcels per hour



Stability

Auto recovery, server redundant configuration, multiple drive motor, uninterrupted operation through distributed control



Flexibility

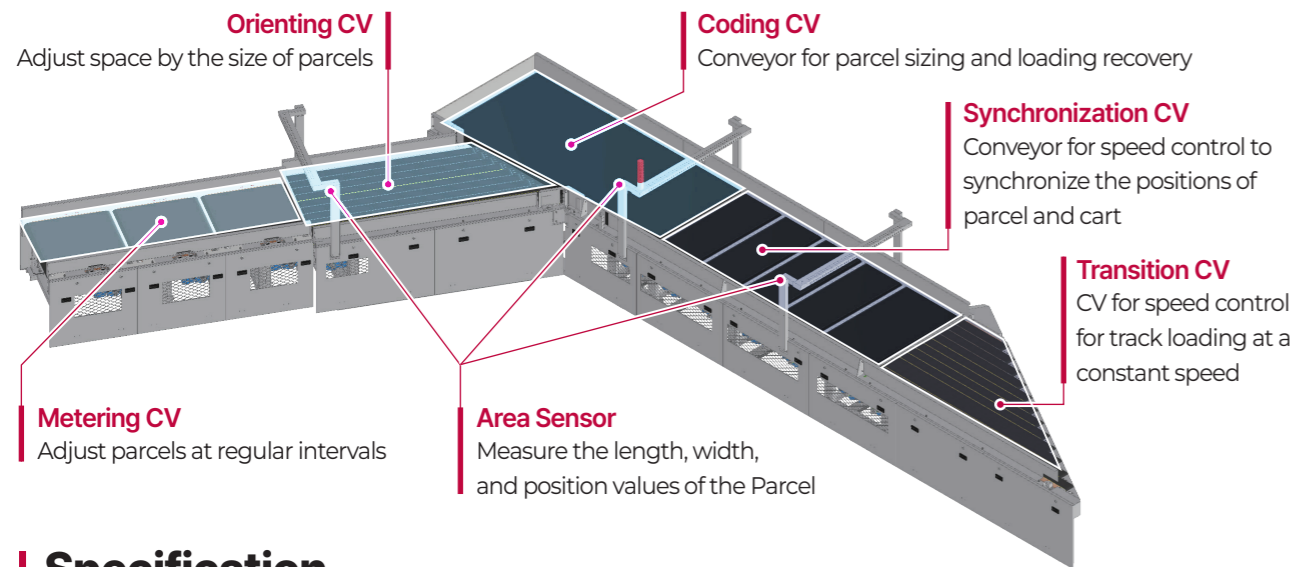
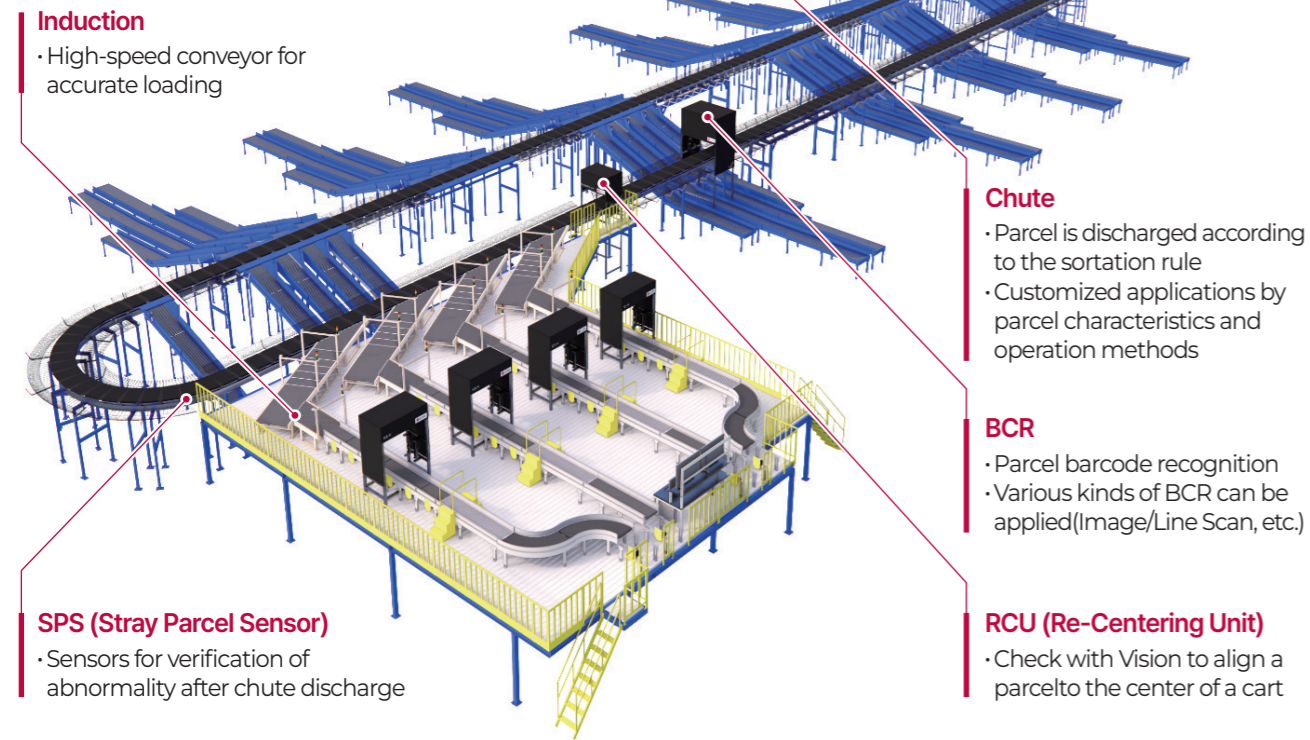
Multiple models of track carts, induction and chute solutions for different parcel sizes



Reliability

The largest number of domestic installations in various industries such as courier, food materials, e-commerce, etc.

Composition



Specification

Track Specification

Maximum Height (cart surface basis)	1,200mm~3,500 mm
Track Speed	1.8 m/sec ~2.6 m/sec
Cart Model	·Single Tray ·Double Tray ·Double Deck (4 Tray)
Cart Motor	BLDC Motor
Power Supply Method	·Bus bar + Collect ·Contactless Power Supply
Track Slope	< 9°
Operational Performance (throughput)	< 25,000 trays/hour
Track Drive Specifications	LFD(Linear Friction Drive)
LFD Quantity	1set per Track Length 15m

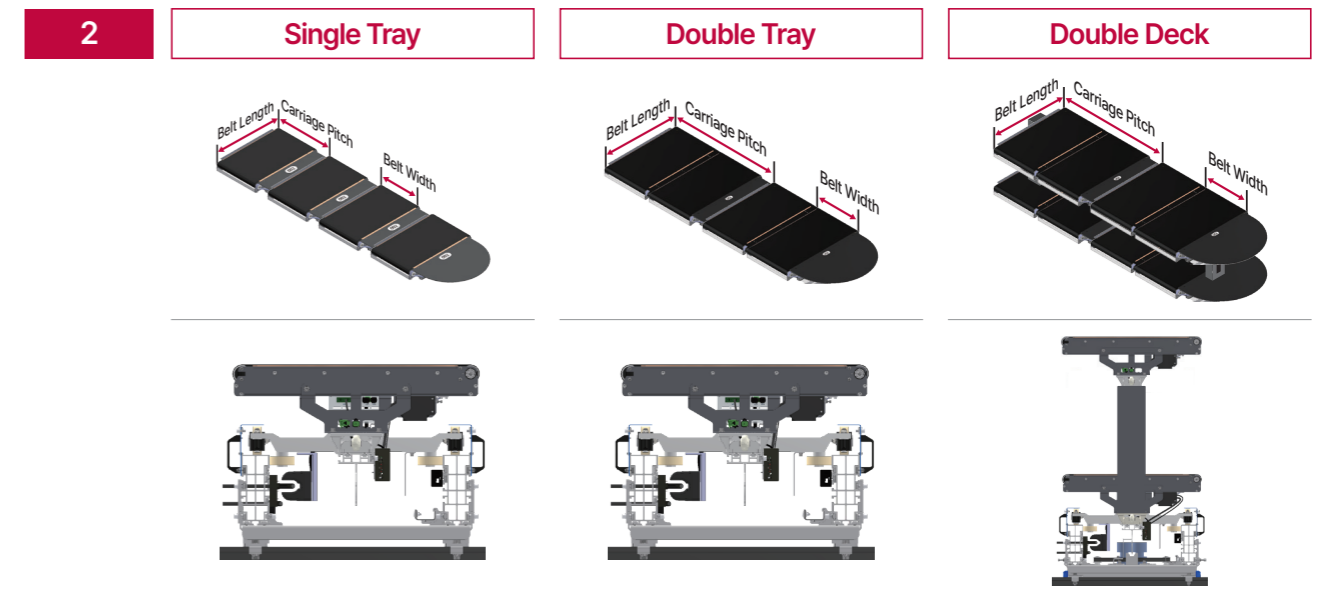
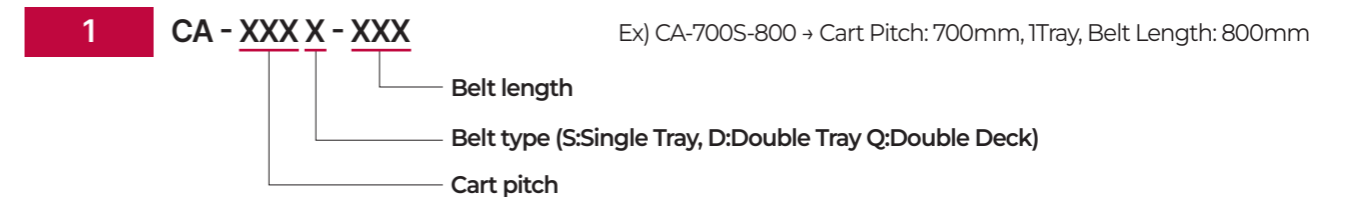
Parcel Specification

Parcel Type	Carton Box, Polybag, Plastic Tote Box
Parcel Weight	Minimum : 20g Maximum : 35kg
Parcel Size	Minimum : 50*50*1 mm Maximum : 1,200*600*600 mm

* Preliminary consultation with the design team is required for the parcel types, packing requirements, and the bottom shape of the parcel.

Cart Model Information

Sorter Type	Cart Model Co., Ltd.1	Carriage Pitch (mm)	Belt Width (mm)	Belt Length (mm)	Track Radius (mm)	Max. Parcel Size L*W*H(mm)	Design Capacity Sorts/hour (@2.6m/sec)
Single Tray	CA-600S-700	600	400	700	3,500	700*400*400	Max. 15,000
	CA-650S-700	650	450	700	4,000	700*450*450	Max. 13,846
	CA-650S-800			800	4,000	800*450*450	Max. 13,846
	CA-700S-800	700	500	800	4,000	800*500*500	Max. 12,857
	CA-700S-1200			1,200	4,000	1,200*500*500	Max. 12,857
	CA-800S-1000	800	600	1,000	4,000	1,000*600*600	Max. 11,250
	CA-800S-1200			1,200	4,000	1,200*600*600	Max. 11,250
Double Tray	CA-1000D-800	1,000	370	800	4,500	800*350*350 800*1,000*800	Max. 15,000 (Parcel Rate 8:2)
	CA-1100D-1000	1,100	420	1,000	4,500	1,000*400*400 1,000*1,100*1,000	Max. 13,636 (Parcel Rate 8:2)
Double Deck	CA-1100Q-1000	1,100	420	1,000	4,500	1,000*400*400 1,000*1,100*1,000	Max. 27,272 (Parcel Rate 8:2)



3 Depending on the layout configuration method such as Pre-Sorting/Cross-over, it is possible to design performance that is more than twice the throughput.

[Modular Design, High Scalability, Flexibility]

Smart Conveyor

The Smart Conveyor by LG CNS offers innovative design and quality compared to existing conveyors.



Key Points



Platform standardization

Design uniformity through standard platform, shortening production and assembly processes
Integrated management of the entire process from design to maintenance



Easy installation

Modular design enables on-site expansion and enhances responsibility to customer's requirements
Modular structure and minimized wiring shorten the electric devices installation period



Convenient maintenance

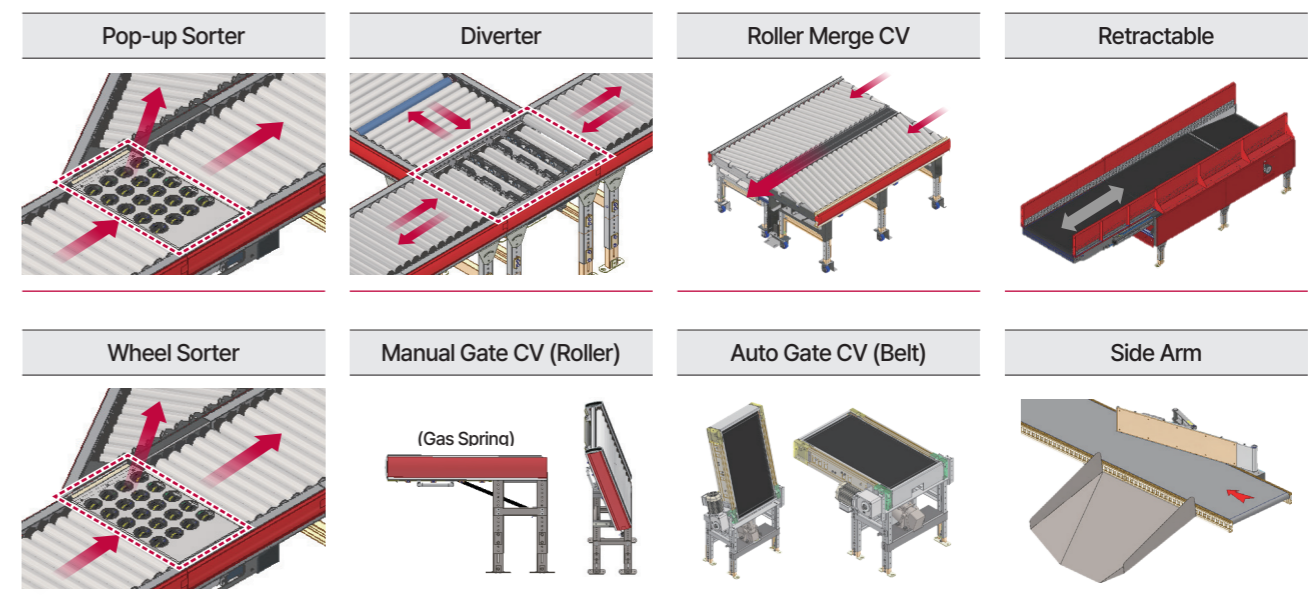
Detailed design considering maintenance, increases convenience for fine-tuning and part replacement
QR code system enables easy maintenance with high visibility

Line-up

Transfer Conveyor



Module Unit

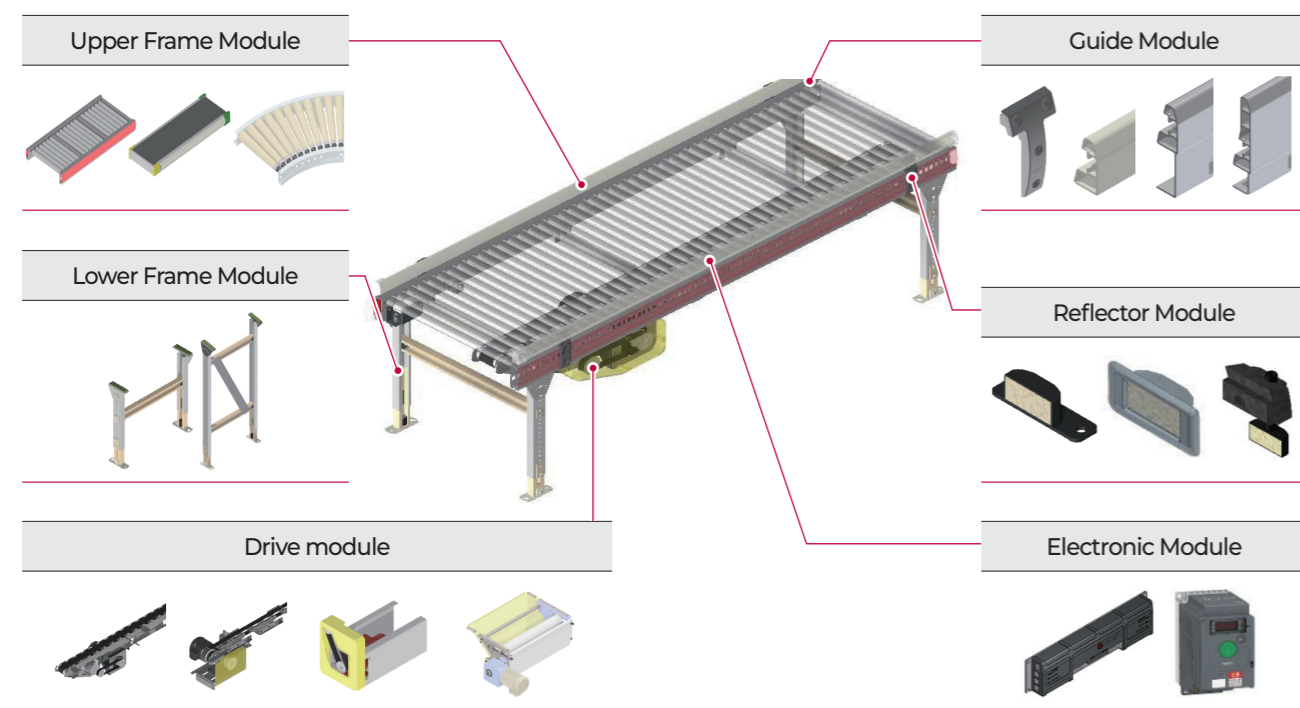


Major Advantages

Standard Platform

LG CNS shortened the manufacturing and assembly process based on a standard frame production. This increases quality, design uniformity, maintenance convenience, and enables efficient stock management.

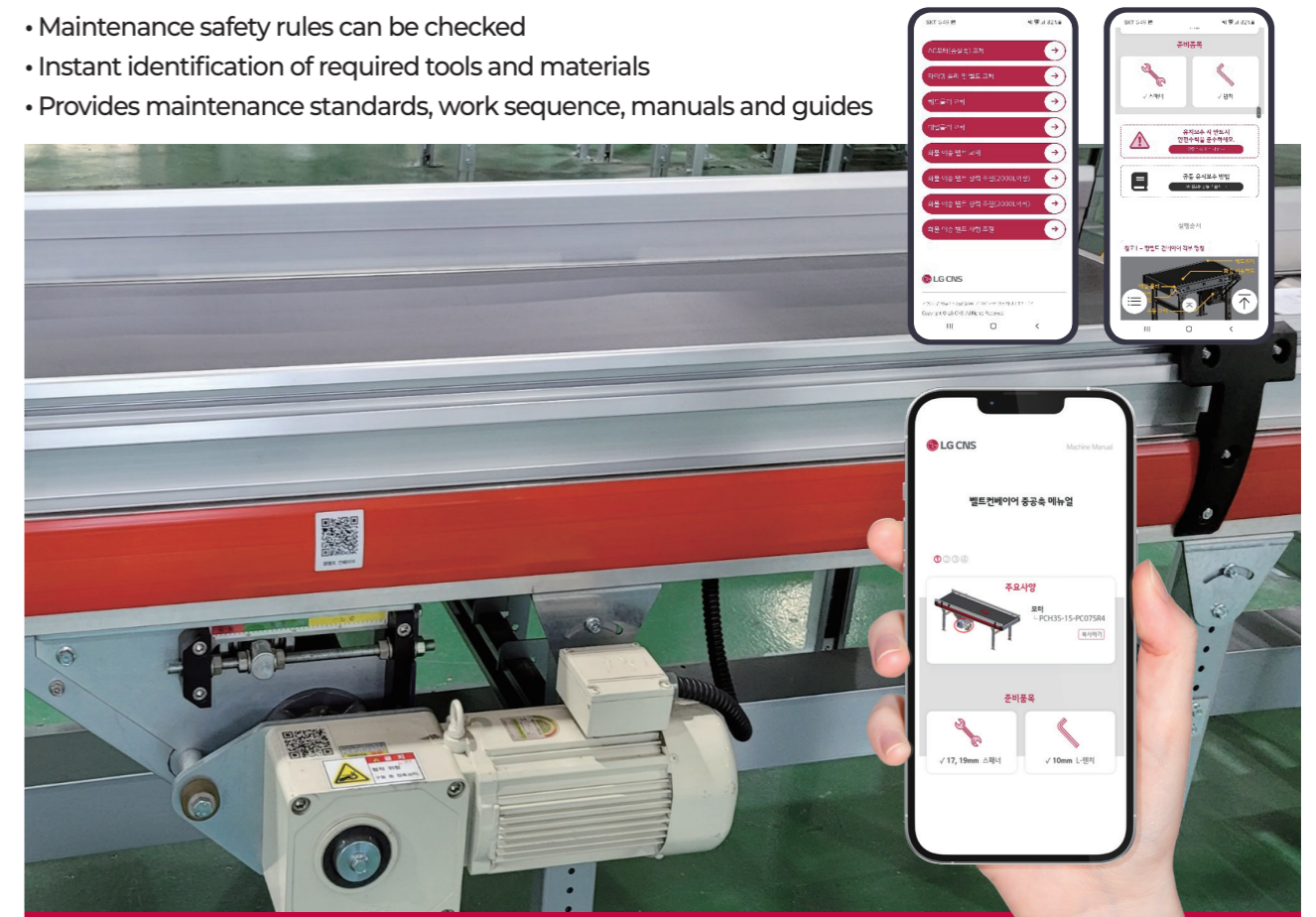
- Uniformity by single-standard model
- High quality secured by a unified parts structure
- Facility adjustment and expansion flexibility secured through standard specifications
- Fast & accurate installation with standard assembly method
- Standardized parts for efficient maintenance management
- Increased maintenance speed and convenience with common parts



Mobile-connected maintenance

LG CNS has established a mobile-connected maintenance system using QR codes. By taking a picture of the QR code attached to each facility, maintenance method and required spare parts can be checked.

- Maintenance safety rules can be checked
- Instant identification of required tools and materials
- Provides maintenance standards, work sequence, manuals and guides



Specification

Conveyor Specification

Operational performance (throughput)	Max. 8,000 ea / hr	
Minimum height (based on top surface)	600 mm	
Standard inner width	420 / 520 / 630 / 720 mm	
Standard roller pitch	60 / 75 / 90 mm	
Speed	Minimum : 30 m/min	Maximum : 120 m/min
Permissible slope	Max. 15°	
Noise	< 70 dB	
Driver	IO Type : 1-Axis Drive	Communication Type : 6-Axis Drive

Parcel Specification

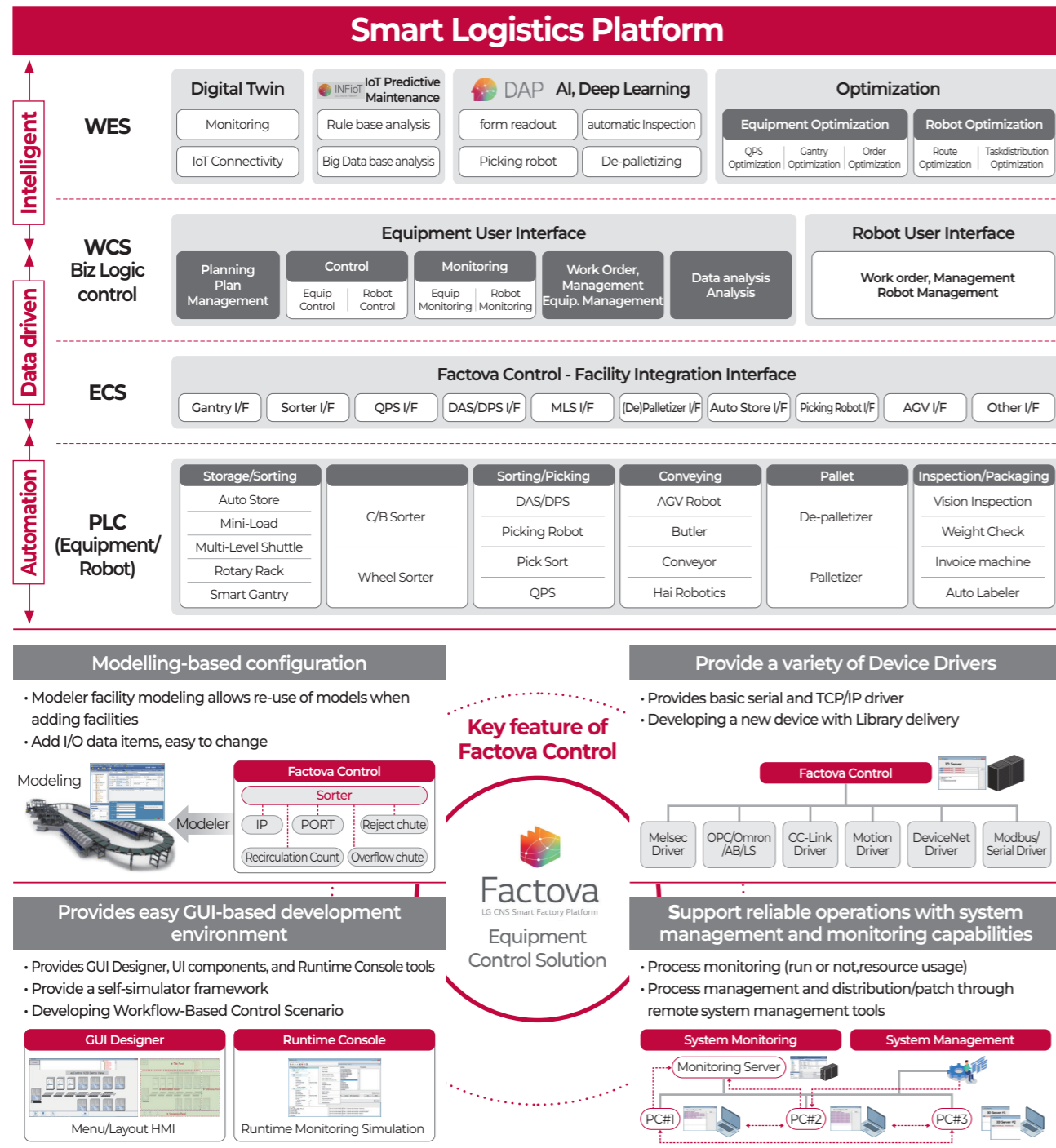
Parcel Type	Carton Box, Polybag, Plastic Tote Box	
Parcel weight	Minimum : 50 g	Maximum : 30 kg
Parcel Size	Minimum : 100(L) x 50(W) x 20(H) mm Maximum : 1,500(L) x 520(W) x 500(H) mm * Customer requirements applicable	

* Preliminary consultation with the design team is required for the Parcel types, packing requirements, and the bottom shape of the Parcel.

[Standardization, Zero Downtime, Optimization Algorithm]

Smart Logistics Platform

The smart logistics platform enhances logistics operations using advanced control technologies, optimization algorithms, digital twin, and predictive maintenance.

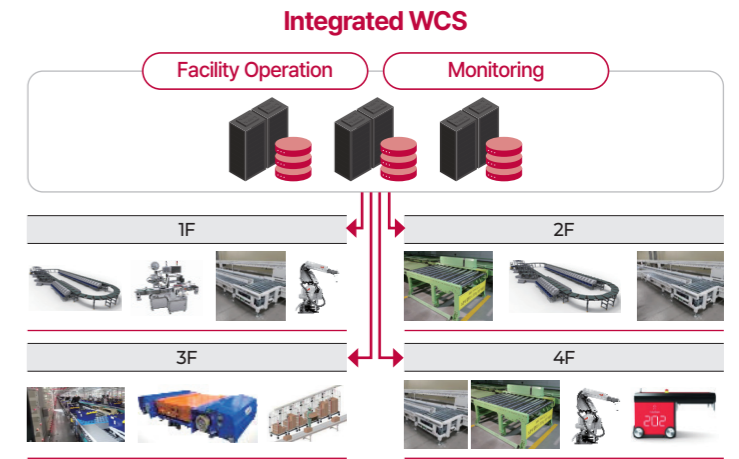


WCS (Warehouse Control System)

LG CNS's WCS solution implements AS/RS, Shuttle, QPS and Sorter system functions and supports center operation by establishing an efficient interface and monitoring system.

Integrated facility control

- Optimized facility integration operation plan
- Highly efficient facility operation system
- Various facility controls
- Integrated visualized report
- Integrated Parcel tracking
- Modularized function pool
- Quick response to business environment changes



Standardized interface

- PLC interface standardization**
 - Standardize Packet Type Applicability Criteria
 - Parcel ID standardization
 - Telegram Bandwidth Standardization
- Equipment ID standardization**
 - Equipment ID Standardization
 - Standardized equipment attribute management

Multilingual Support

- Multilingual resource management
- Multilingual support for screen terms and messages

LanguageResource_TH	LanguageResource_ko
Save	저장
Search	조회

Operation management

- Intra-center operation management**
 - Operating hours management
 - Inquiry period management
 - Cargo recognition criteria and priority management
 - DB access information management

Backup settings and automatic backup management

Backup Target	Backup Conditions	Backup Table
Classification result table	Classification Date < Today - 30	Classification result backup table ...
Aggregate log table	Log Date < Today - 10	aggregate log backup table ...

Classification result → Backup-SortingResult
 Sorting Log → Backup-SortingLog
 Sorting Plan → Backup-SortingPlan

Standardized customer interface in Json format

```

{
  "type": "articles",
  "id": "1",
  "attributes": {
    "title": "Rails is Omakase"
  },
  "relationships": {
    "author": {
      "links": {
        "self": "/articles/1/relationships/author",
        "related": "/articles/1/author"
      }
    }
  },
  "data": { "type": "people", "id": "9" }
}
    
```

Utilize and manage standard SQL and Dictionary

- Developed with ANSI SQL
- Implemented in various RDBs without any modification (Oracle, MS-SQL, MySQL etc.)
- Standardize UI and DB Object names
- Use message standardization

ORACLE | SQL Server | MySQL

Automated Deployment Management

Manage various intra-center operation options

WCS Server http://www.lgcns.co.kr

User PC1 | 用户_NT_TR_25 | User PC3

Provide Virtual Testing Capabilities

Pre-validate a PLC with a Virtual Module

Installations Integration | Freight Input Communication | IPS communication | AI communication Integration | Cargo Discharge Communication

Virtual PLC/IPS | Virtual PLC/AI | Virtual PLC/Sensors



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