

AS/RS





UNITLOAD

Rack Sorter[®] Specifications

1 ton type

Item	Model	3ASP6	3ASP9	3ASP12	3ASP15	3ASP18	3ASP21
Overall Rack Height ^{*1}	mm	2,000 to 6,000	to 9,000	to 12,000	to 15,000	to 18,000	to 21,000
Overall Length	m	Up to 70 ^{*2}					
Maximum Load	kg	1,000 (Including pallet weight)					
Load Size	mm	W800 to 1,500 / L800 to 1,500 / H500 to 1,500				W800 to 1,500 / L800 to 1,500 / H800 to 1,500	
Travelling Speed ^{*3}	m/min	max 80 to 200					
Lifting Speed ^{*3}	m/min	max 20 to 31.5	max 20 to 40	max 20 to 50		max 31.5 to 50	
Forking Speed ^{*3}	m/min	max 31.5 to 60					
Temperature	°C	0 to 40				-	
		-25 to 0 (Cold Storage Model)					

1.5ton type

Item	Model	3ASP6-15	3ASP9-15	3ASP12-15	3ASP15-15	3ASP18-15	3ASP21-15
Overall Rack Height ^{*1}	mm	2,000 to 6,000	to 9,000	to 12,000	to 15,000	to 18,000	to 21,000
Overall Length	m	Up to 70 ^{*2}					
Maximum Load	kg	1,500 (Including pallet weight)					
Load Size	mm	W900 to 1,500 / L800 to 1,500 / H500 to 1,500					
Travelling Speed ^{*3}	m/min	max 80 to 200				max 80 to 200	
Lifting Speed ^{*3}	m/min	max 20 to 31.5	max 20 to 40	max 20 to 50		max 31.5 to 50	
Forking Speed ^{*3}	m/min	max 31.5 to 60					
Temperature	°C	0 to 40					

2ton type

Item	Model	3ASP6-20	3ASP9-20	3ASP12-20	3ASP15-20
Overall Rack Height ^{*1}	mm	2,000 to 6,000	to 9,000	to 12,000	to 15,000
Overall Length	m	Up to 70 ^{*2}			
Maximum Load	kg	2,000 (Including pallet weight)			
Load Size	mm	W900 to 1,500 / L800 to 1,500 / H500 to 1,500			
Travelling Speed ^{*3}	m/min	max 80 to 200			
Lifting Speed ^{*3}	m/min	max 20 to 31.5	max 20 to 40		
Forking Speed ^{*3}	m/min	max 31.5 to 60			
Temperature	°C	0 to 40			

*1: In the case of overhang rack, overall rack height is higher. *2: Overall length is customized up to 200 m. *3: Speed data are without load condition.

All rights reserved by Toyota Industries Corporation.



Rack Sorter[®]

AUTOMATED STORAGE & RETRIEVAL SYSTEM for PALLET
6m·9m·12m·15m·18m·21m

The most up to date system for warehouse & material handling

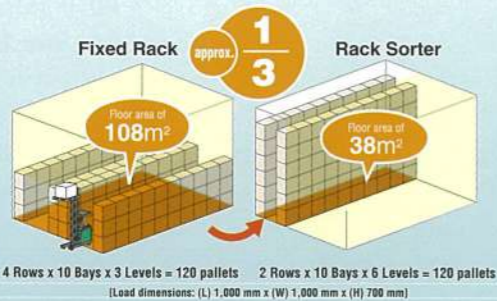
- Minimum stock & high speed logistics are the key to support the storage & logistics system.
- The attributes to the storage items are the fully controlled by the "Logistics Control System : LCS". Order Plans, Production Plans and Storage Conditions can directly be connected to LCS.

Space saving

High density storage by Rack Sorter P.

Small Projection area with tall rack structures perform the storage density compressed to around 1/3 of conventional fixed rack storage system. The strategic storage control & profit, the "Rack Sorter P" will be the great help to our customers .

Combination with "Rack Sorter P", Conveyer systems & Fork Lift Trucks, TMHC can supply the best solution & satisfaction to our customers.



Logistics control system : LCS / The intelligence

TOYOTA's "PE & IS-200" logistics control systems are the key component system which satisfies the customer's requirements for the "Perfect Stock Control". 5W1H requirements for storages can fully be controlled by the LCS.

Security

Whole storage item are safely stored in the isolated storage cells. Only computer controlled SRM can access to the storage cells. LCS controlled storage & retrieval system contribute to the safe & secure Warehouse Operation.

Operation Safety

The SRM operating spaces are fully isolated from the operator area. Isolated spaces & fully safe Designed Mechanics are the key to the Operator Safety.

HIGH SPEED PALLET HANDLING

High speed & reliable systems contribute to the high efficiency logistics of the warehouse.



NEW TOYOTA "3ASP SERIES" AS/RS SYSTEM

The performance, efficiency, reliability, and operation safety. TOYOTA's "3ASP SERIES" are the top of the line. TOYOTA supplies the sophisticated AS/RS systems for Global Customers.

Preventive Maintenance Systems

P 03

To support the stable operation "3ASP SERIES" equips the intelligent support system for Preventive Maintenance.

Easy operation by touch screen

P 05

The Remote Operation Panel function had been refreshed. Easy, simple, direct, and operator-friendly systems are the advantage of New "3ASP SERIES".

Best time cycle & energy saving design

P 05

The sensors & controls also had been refreshed by the new design / laser sensors, high speed control systems etc. The time cycle had been improved and power saving mechanics had built in.

Safety mechanics

P 06

Safety mechanics & control system had been refreshed. The updated design & components make AS/RS systems safer.

Rack Sorter P

The preventive maintenance to protect from the shut down of Rack Sorter P.

Production Line can be stopped or the delivery center can be stopped.

Big downtime loss, operation loss & maintenance cost will be higher.

Can effect to the products & storage items safety.

Reliability in Operation

TOYOTA's preventive maintenance solutions for 3ASP SERIES

The new 3ASP SERIES equips the following functions.

Preventive maintenance support internal replacement lifetime display

Life of replacement parts

Wearing & consumable spare parts lifetime is monitored & informed to the operator when to change or to maintain the parts. The data displays on ROP screen.



Auto alarm function

The alarm automatically comes up on ROP screen. Parts lifetime, operation log, maintenance and parts change history are stored. The data is easy to review & modify.

Quick recovery / Error monitor & Recovery guide

Visual display guide

The visual recovery procedures are on the screen. The help system for operator & mechanics are equipped.



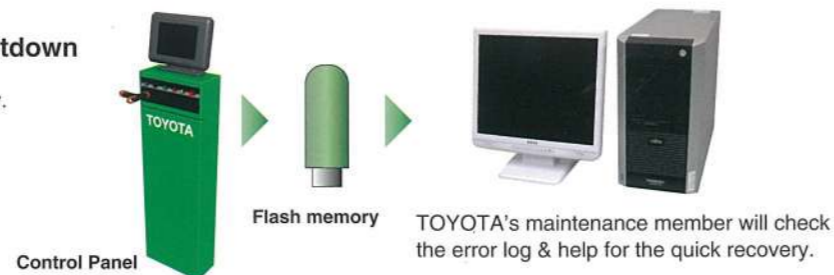
Error Monitor & recovery help menu

In case of system error, the error sign is on the screen. The error details & recovery procedure guide is on the screen.

Error diagnostics support / Error log record

For quick recovery from error & shutdown

The error log is easy to transfer by flash memory. The error logs are the key to check the details & help for the system health diagnostics.



Operator Friendly

User-friendly easy GUI color LCD Touch Screen

User friendly graphic interface



Remote operation panel terminal had changed to color LCD touch screen. The operation becomes more operator friendly.



Saving Energy

Efficient motion control SRM / best time cycle

Speed Control for Energy-Saving

Best acceleration & deceleration control to get the minimum time cycle & the highest efficiency. Minimum lost motion & loss time had performed. Optional power recovery unit available.

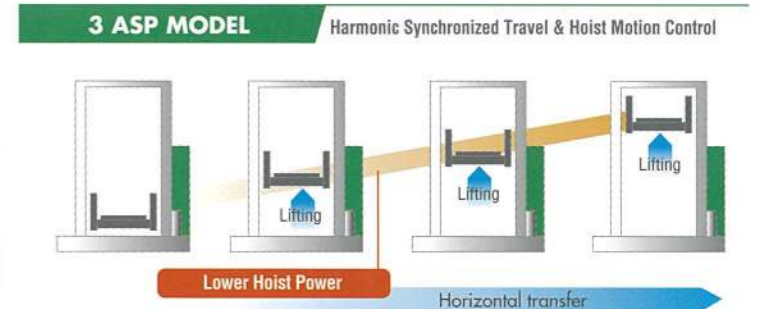
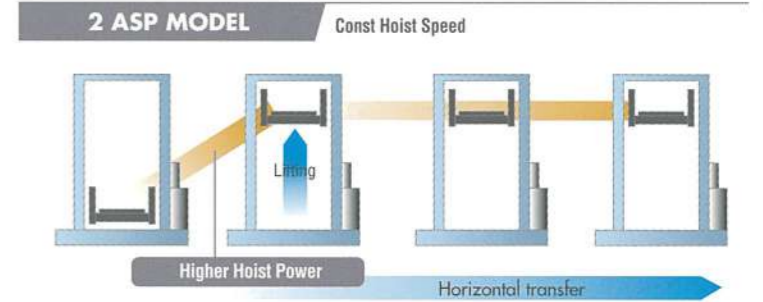
Power consumption: Outbound + Homebound Model case (2 Rows x 20 Bays x 6 Levels)

Example of power consumption

2 ASP MODEL	3 ASP MODEL	
Travel 10.8Wh	Travel 10.2Wh	▲0.6 Wh
Hoist 22.7Wh	Hoist 15.0Wh	▲7.7 Wh
Total 33.5Wh	Total 25.2Wh	▲8.3 Wh

※When installed with optional power regenerative unit

≥ 15% improvements



The time cycle & energy efficiencies are the top of the line.



Safety functions & Equipments

Safety functions, tools, sensors & alarms

Maintenance remote control unit

Reliable 3-position enable switch is equipped
 1st level ...on
 2nd level ...off
 open ...off
 The enable switch avoid the SRM motion from operator hand gripping lock error.



Safety plug

Double switch assembly safety plug is applied.
 For maintenance & error recovery, Operator safety conditions kept by the safety plug to prevent from the SRM's error motion.



Travel & hoist over run guard

For travel & hoist motion, laser distance sensor monitoring both operation speed & positions.
 In case the overspeed, sensing SRM stops in emergency error before the motion stroke end.

Double occupancy guard

On the both fork edge, double occupancy detection PE sensors are equipped to prevent the load collision & falling down.

Emergency stop

Emergency switches are equipped on both traveling side control panel.
 The switches are used in case of maintenance & error recovering conditions.

Safety guard fencing

To prevent the man from accessing to the SRM operation zone, the full enclosing safety guard fencing is applied.
 The height had changed from 1.8m to 2.0m from "3ASP SERIES".

Auto-start information buzzer

With 3 sec information buzzer is applied to allow the operator to escape from the error position.

Earthquake sensing / protection from collapsing of loads OPT

Earthquake sensor presets to check over "Level 5" rating earthquake.
 In case the sensor on, SRM is automatically stopped.
 The stopper attached on the bracket stops the falling down of the pallets/loads.

Other Options

Optional remote manual SRM operation OPT

SRM manual motion from the station S/W box connected remote control unit is available.

Lockout system OPT

To secure the safety plug functions, multi key lockable case is available.
 The key quantity are just same as operator members.
 As far as the members are inside, the lock can never be released.

Unique key for multi AS/RS

In case multi AS/RS units are in operation, the operation switch key specifications are unique & have no interchangeability. The safety condition is kept by SRM.

Load size error

- 1) For load width direction
 Bar size limit sensor is equipped. The collision between pallet / load & rack structure is eliminated.
- 2) For fork stroke direction
 Photo eyes sensor detection system is available which prevent the load collision & falling down.



TOYOTA's LOGISTICS CONTROL SYSTEM "PE & IS-200"

THE BEST SOLUTION

The full specification for storage control & optional host I/F supports the on line control of the logistics.

TOYOTA LCS for the best logistics.

- Storage data full support
- First in, First out
- Automatic programmed stock control
- Real time logistics & production control



Originally designed for TOYOTA AS/RS system from "TOYOTA PRODUCTION SYSTEM"

PE

For small inventory & factory.
For small capacity application.

1. Combination with operation system & inventory controls
2. Inexpensive solution for small business.



IS-200

Full specifications from
Mid-range to full scale storage

1. Up to 16 SRMS control, for the full scale control.
2. From the standard solution to customized optional solutions.



Inventory Control Functions

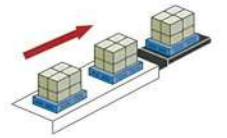
Functions (examples)	System	PE	IS-200
Storage and Retrieval	Reservation storage and retrieval	○	○
	Emergency storage and retrieval	○	○
	Shelf-specific storage and retrieval	○	○
	Supplemental storage	○	□
	Direct	○	□
	Re-store	○	□
	Quick storage and retrieval	×	□
	No stacking storage and retrieval	×	○
	Continuous Storage	×	○
	Planned Storage and Retrieval	×	□
Queries	Query retrieval	○	○
	Storage and retrieval record display	○	○
	Error history query	○	○
	Inventory query by part number	○	○
	Inventory query by cell	×	○
	Cell status query	×	○
	Non-stacked inventory query	×	○
	Under-inventory query	×	○
	Overtime storage query	×	○
	Lists	Inventory list by part number	×
Inventory list by cell by cell		×	○
Cell status list		×	○
Storage and retrieval operation command list		×	○
Storage and retrieval record list		×	○
Part number master list		×	○
Overtime storage parts list		×	○
Under-inventory list		×	○
Surplus inventory list		×	○
Communication log list		×	○
Additional Function	SRM operation history list	×	○
	Storage and retrieval plan list	×	□
	Record list by part number	×	○
	Inventory shortage list	×	○
Errors	Inventory	○	□
	Reorganization	×	□
Others	Error logs	○	×
	Error help	×	○

○:Standard □:Option ×:Not available

Main Operation Menu of IS-200

Continuous storage

Automatic continuous storage by one "store" command input.
The "part number" & "quantities" input makes perfect.



Planned storage & retrieval

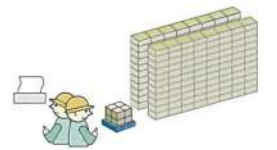
Programmed and/or planned storage to meet the milk run, daily operation plans.
Programming operation unit by unit is available.



Stock Taking

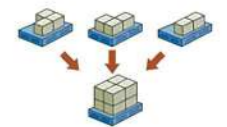
Easy stocking available. By storage data & item by item with SRM St./Ret. Operation.

(Note : For PE printer connection is not available.)



Reconstruction

The small amount of storage items are easy to collect & combine to one pallet unit.



System Specifications

	Type	Control Panel	Server or PC
System	System	PE	IS-200
Hardware specifications	Control Unit	①Board computer ②32-bit CPU ③USB×1	①Desktop computer ②32-bit CPU
	OS	VxWorks (Control unit) / WindowsCE (Display)	Windows2003 / WindowsXP
Basic of components	Display	10.4 inch color LCD	15 inch color LCD
	SRM Q'ty	Max. 1 unit	Max. 16 units
	Q'ty of cells	Max. 1,500	Max. 20,000
	Q'ty of ST for storage and retrieval	Max. 300 ST	Max. 99 ST/crane
	Q'ty of Part Numbers	Max. 1,500	Max. 20,000
	Part No. information	Part numbers (8 digits)	Pallet No. (30 digits)
	Q'ty of Mixed Loads	1	20

STANDARDS

BUILT to Order

The user can only choose the necessary functions from the selectable options.

Inexpensive System

TOYOTA support the most inexpensive user-friendly system with some selectable options.

Minimum Operation Errors

User-friendly TOYOTA standard system minimize the error.

CUSTOMIZE

Customized System Design

The customized system is available which fully satisfy the customer's requirements for AS/RS Operations.

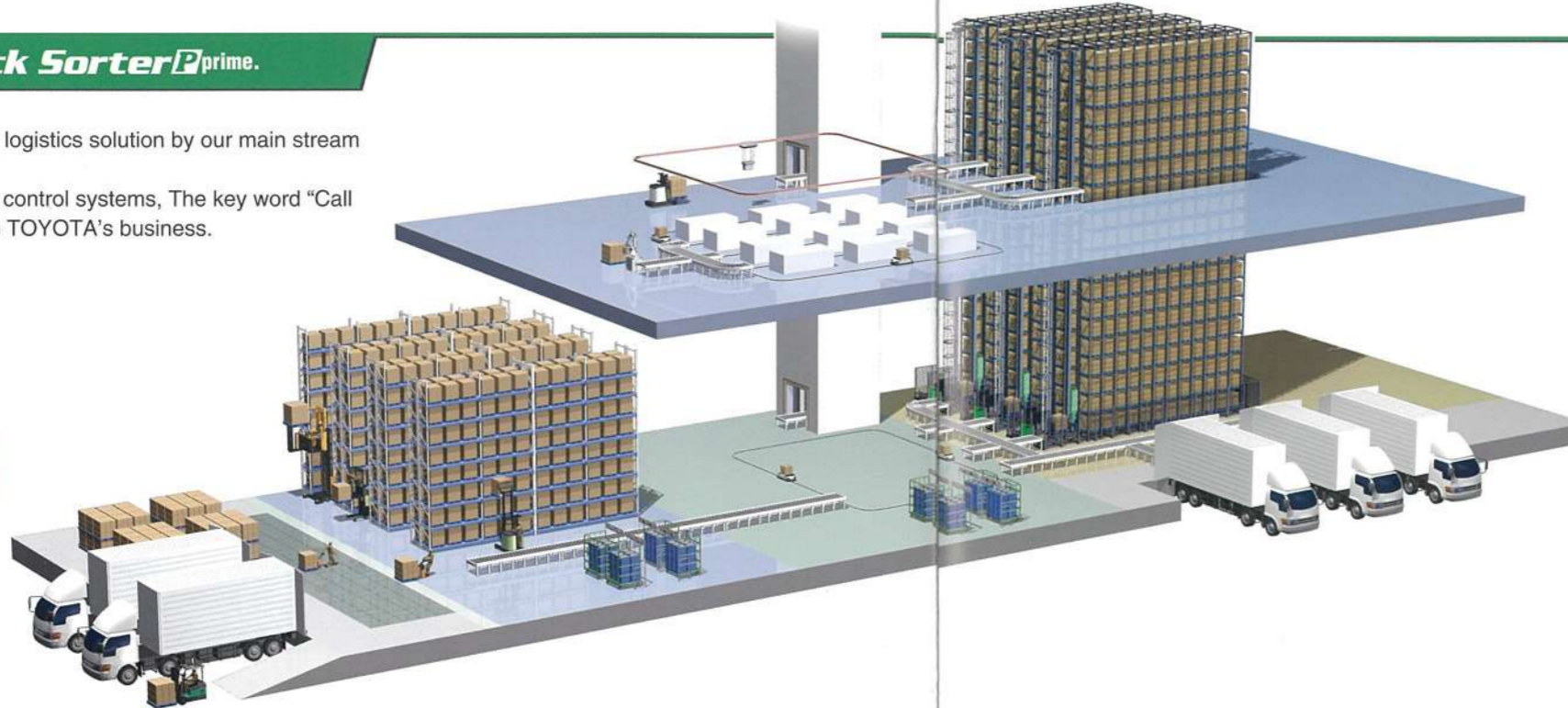
TOYOTA's best logistics solutions to maximize the customer's satisfaction & profit.

TOYOTA supports the professional engineering & design service. TOYOTA's product line & accumulated know-hows are the passport for the best solutions.
 "Call TOYOTA" the right solution.

Full scale logistics system by **Rack Sorter[®]prime.**

TOYOTA designs & supports the best logistics solution by our main stream "Rack Sorter P" AS/RS system.
 Whole logistics component & logistics control systems, The key word "Call TOYOTA". Logistics & Productions are TOYOTA's business.

Whole engineering & design, including construction, mechanisms, racks, transportations and logistic systems are available.



Storage Systems



Rack Sorter[®] FLEX



Partner Rack Transfer Type

T-WINS LS

TOYOTA's integrated warehouse management system for full scale. Inventory, storage, retrieval, location controls and transportations. All customer's requirements inside. The best solutions are here "T-WINS LS".

Battery Forklift Truck Product Lines



GENEO-E



GENEO-R

Material Handling equipment



MINI MOVER



TAGNOVA

Material Handling Systems



TAG CART



Road Sorters



AGV Forklift



Sky Sorter



Mobile Sorter




Rack Sorter[®]

Best solutions for business fields. / the reference lists.

The wholesalers

Rack back picking solutions

Combination of AS/RS & manual retrieval. Isolated safety operation spacing.



Examples

- ① Rack-back safety device
- ② DPS (Digital Picking System)
- ③ Variable fork stroke setting specification
- ④

Medical, chemical & food business

Semi-clean specification

Contamination free storage. Rust proof mechanisms.

Examples

- ① Chain dust cover
- ② Low dust chain application
- ③ Fork stainless steel plate tub
- ④ Trolley & rack dust pan attachment

Liquor & Beverages business

Barrel shaped items

Barrel or cylindrical drum shaped items storage.

Examples

- ① Specific fork for barrels
- ② Specific rack for barrels

System retrofit & renewal

Replacement of existing old AS/RS application. SRM, controls, and LCS are available for retrofit & renewal "Call TOYOTA now". TOYOTA will be a new AS/RS system supplier by the Partial Inexpensive retrofit job.

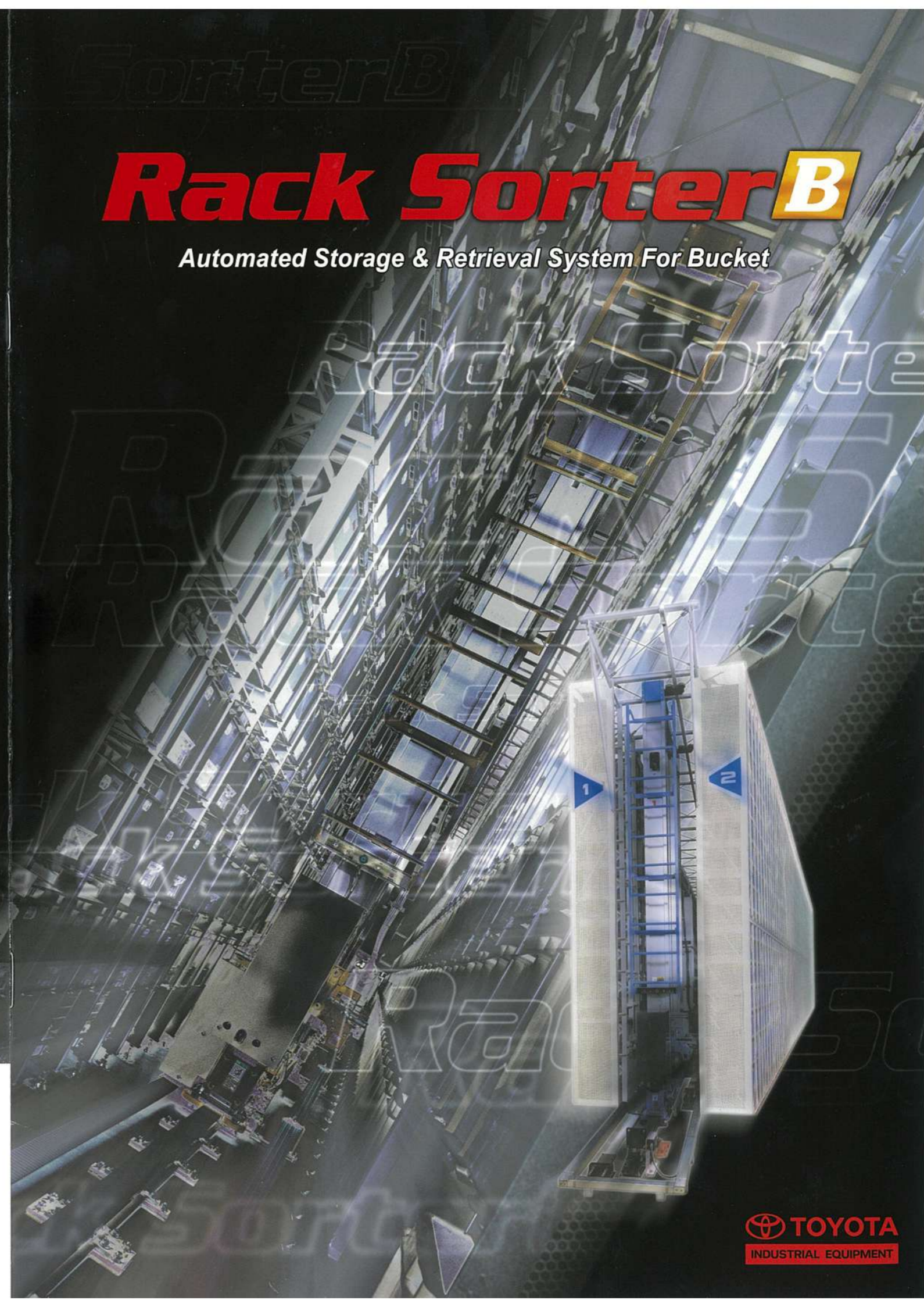


MINILOAD

**Automated Storage & Retrieval System
For Bucket**

Rack Sorter B

Automated Storage & Retrieval System For Bucket



All rights reserved by Toyota Industries Corporation.



TOYOTA MATERIAL HANDLING INTERNATIONAL

CAT.Rack Sorter/(E)1003/Printed in Japan No.03013210

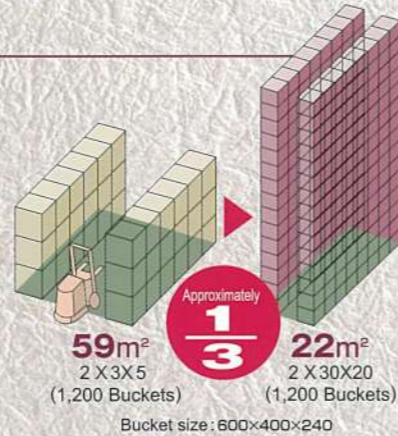


TOYOTA's Best Logistics Solutions to Maximize the Customer's Satisfaction & Profit

Space

Very Compact & Space Saving Design

Where There is a Space & Path Rack Sorter B is Available. Compact Cell Design & Station Makes Perfect. The Space Volume is Around 1/2 - 1/3 Compared to the Conventional Rack Storage. The Installation to 2F, 3F is also selective.



Speedy

Prompt Storage & Retrieval

Best Cycle Time for the Frequent Storage & Retrieval Motion
 Light Weight & Compact SRM with High Speed/High Efficiency

Easy Operation

Operator Friendly GUI

Up To Date GUI System for Easy & Quick Response

IS-200



Storage Status Query Screen

Silent & Clean Mechanism

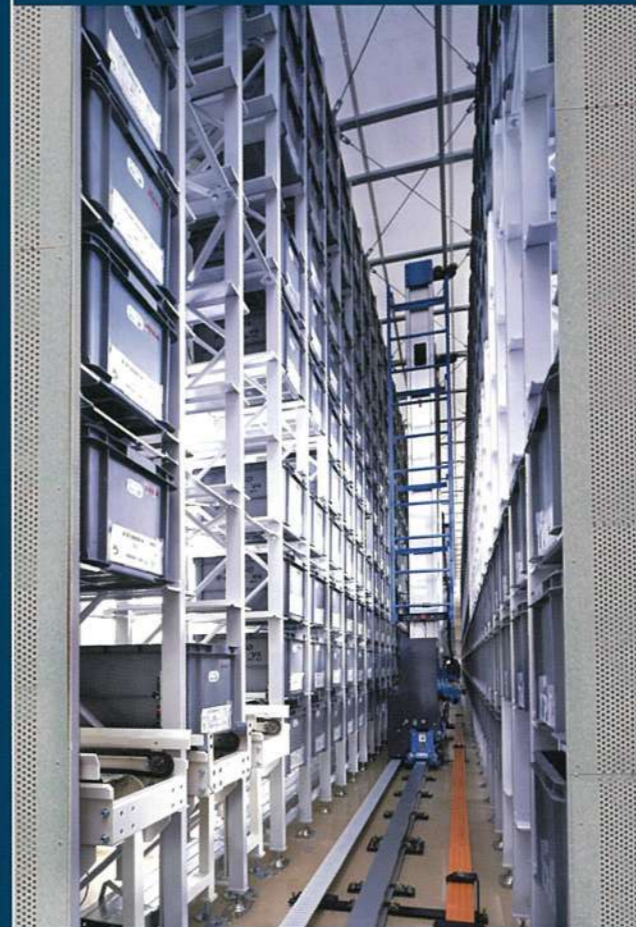
Combination between the Urethane Wheel & the Aluminum Rail,
 The Best Combination as Drive Mechanism

APPLICATION

Rack Sorter B Best Fit for the Following Applications. Best Tuning for Application Available



Rack Sorter^B Advance Type Model Best & High Performance Model Speedy Efficient & Reliable



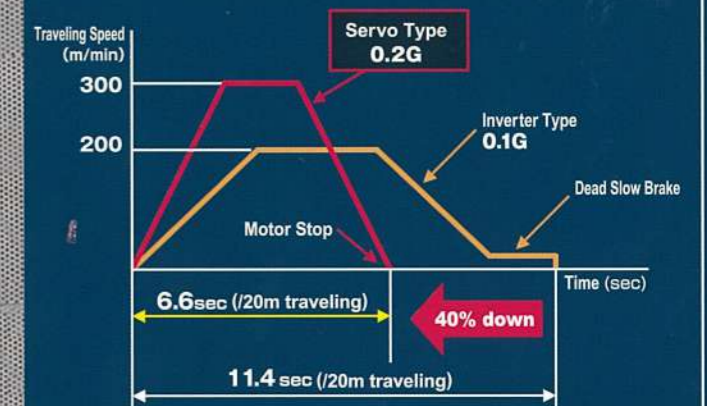
High-Performance

Traveling Speed
300m/min

Hoisting Speed
100m/min

Cycle Time Around 40% Faster Compared to the Inverter Model

Combination between the AC Servo Motor & the Elastomer Belt Perform the High Speed Operation.



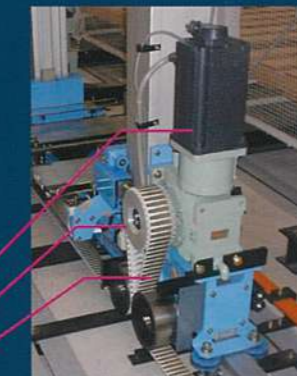
The Cogged Elastomer Belt Drive Mechanism

Non-Slip Acceleration for Traveling & Hoisting

Maintenance free & Oil free Clean Drive

Long Life High Durability Design

Belt Loop



Excellent Cost Performance

High Efficiency Operations Contribute to the Compression of Storage Module Quantities.
 The SRM Units Space Saving.

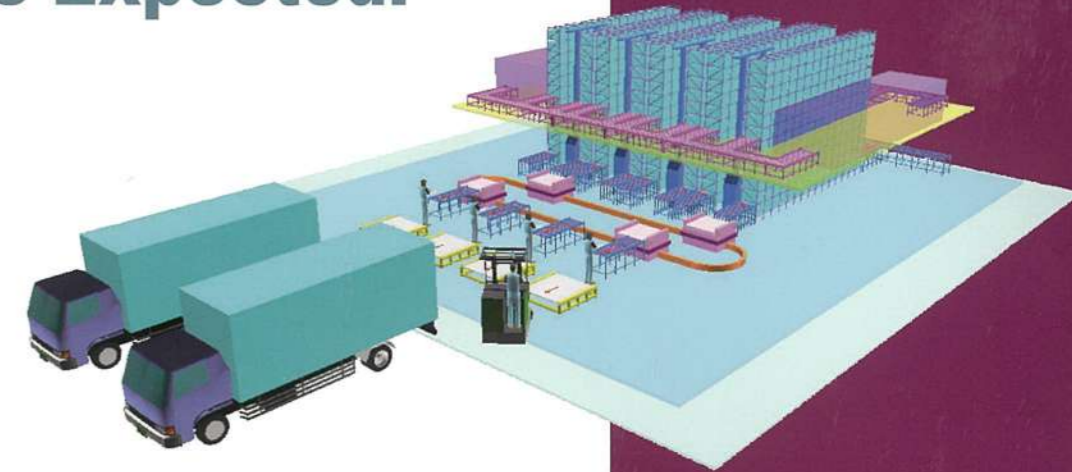
	Crane Quantity	Space
Inverter	6 Cranes	1.00
Servo	4 Cranes	0.85

Rack Sorter B is the Core Component for the LOGISTICS & SCM. Not Only Storage Function But Additional Value is Expected.

TOYOTA Proposes the Best Logistics Solutions.

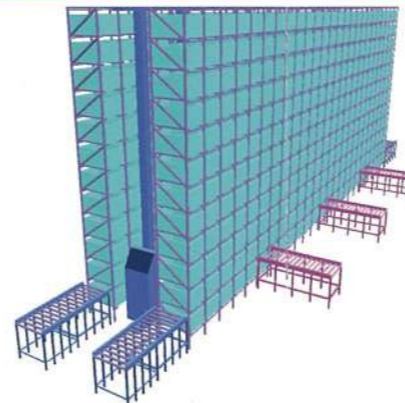
The Production Line & Auxiliary Components Maximize the Customer's Profit.

A Variety of Handling & Storage Items with Various Quantities. The "Just In Time" "On Demand" Delivery is the Key to Business. TOYOTA Proposes the Most Up To Date, Just Fit, Easy to Operate & Precious Values to the Global Customers. The Rack Sorter B / Rack Sorter P / Mobile Sorter / Conveyers with TOYOTA LCS (IS-200 / T-WINS LS) Propose the Best Solution & Best Value for Our Priority Customers. "Call TOYOTA" the Best Logistics & SCM Solution.



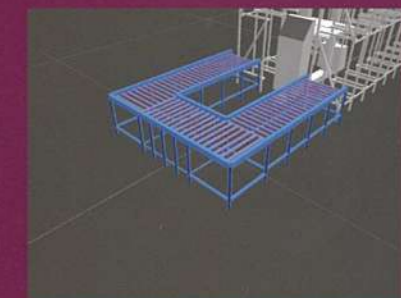
The Sorting / Picking

The best combination with AS/RS & the Delivery Line.
The System fit to the Production Line and Assemble Line.
The Sorting, Picking & Consignment are Very Flexible to apply.

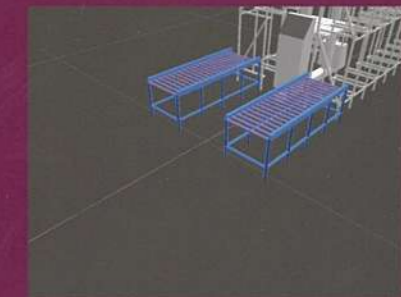


The Combination of Multi Stations Makes the Logistics Flow More Accurate and Flexible for Both from Receiving & Delivery.

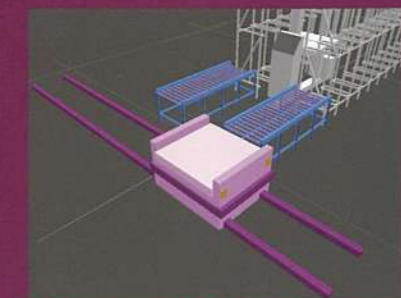
SYSTEM UP



Loop Type Conveyor



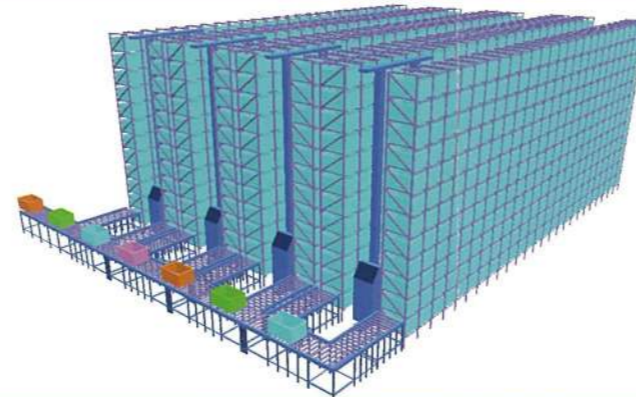
Aisle Conveyor



Mobile Sorter & Aisle Conveyor

The Programmed Sequential Supply

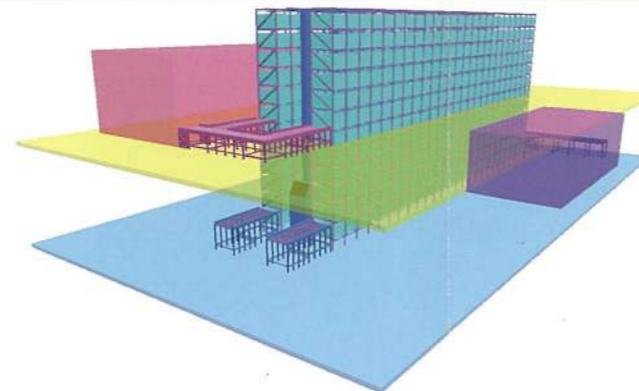
In case Just In Time Supply On Demand is required, you can apply the Programmed / Planned Sequential Consignment & Delivery.



Prompt , On Demand Flexible Consignment & Delivery.
The Highest Efficiency Design.

The Delivery / Supply

Both Storage & Production Line Buffer are available.
Also, Transfer from Floor to Floor and Multi Level Floor Service is easy to support.



The Buffer Storage Application for Production Line.
Just In Time On Demand System Minimize the Stock by LCS Function.

TOYOTA's LOGISTICS CONTROL SYSTEM "PE & IS-200"

THE BEST SOLUTION

The full specification for storage control & optional host I/F supports the on line control of the logistics.

TOYOTA LCS for the best logistics.

- Storage data full support
- First in, First out
- Automatic programmed stock control
- Real time logistics & production control



Originally designed for TOYOTA AS/RS system from "TOYOTA PRODUCTION SYSTEM"

PE

For small inventory & factory.
For small capacity application.

1. Combination with operation system & inventory controls
2. Inexpensive solution for small business.



IS-200

Full specifications from
Mid-range to full scale storage

1. Up to 16 SRMS control, for the full scale control.
2. From the standard solution to customized optional solutions.



Inventory Control Functions

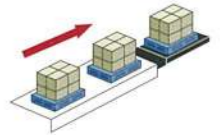
Functions (examples)	System	PE	IS-200
Reservation storage and retrieval		○	○
Emergency storage and retrieval		○	○
Shelf-specific storage and retrieval		○	○
Supplemental storage		○	□
Direct		○	□
Re-store		○	□
Quick storage and retrieval		×	□
No stacking storage and retrieval		×	○
Continuous Storage		×	○
Planned Storage and Retrieval		×	□
Query retrieval		○	○
Storage and retrieval record display		○	○
Error history query		○	○
Inventory query by part number		○	○
Inventory query by cell		×	○
Cell status query		×	○
Non-stacked inventory query		×	○
Under-inventory query		×	○
Overtime storage query		×	○
Inventory list by part number		×	○
Inventory list by cell by cell		×	○
Cell status list		×	○
Storage and retrieval operation command list		×	○
Storage and retrieval record list		×	○
Part number master list		×	○
Overtime storage parts list		×	○
Under-inventory list		×	○
Surplus inventory list		×	○
Communication log list		×	○
SRM operation history list		×	○
Storage and retrieval plan list		×	□
Record list by part number		×	○
Inventory shortage list		×	○
Inventory		○	□
Reorganization		×	□
Error logs		○	×
Help		×	○
Error help		×	○

○:Standard □:Option ×:Not available

Main Operation Menu of IS-200

Continuous storage

Automatic continuous storage by one "store" command input.
The "part number" & "quantities" input makes perfect.



Planned storage & retrieval

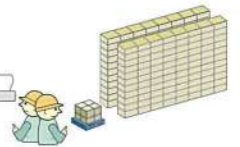
Programmed and/or planned storage to meet the milk run, daily operation plans.
Programming operation unit by unit is available.



Stock Taking

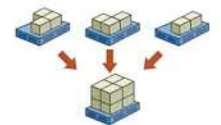
Easy stocking available. By storage data & item by item with SRM St./Ret. Operation.

(Note : For PE printer connection is not available.)



Reconstruction

The small amount of storage items are easy to collect & combine to one pallet unit.



System Specifications

Type	Control Panel	Server or PC
System	PE	IS-200
Hardware specifications	①Board computer ②32-bit CPU ③USB×1	①Desktop computer ②32-bit CPU
Control Unit	VxWorks (Control unit) / WindowsCE (Display)	Windows2003 / WindowsXP
OS	10.4 inch color LCD	15 inch color LCD
Display	Max. 1 unit	Max. 16 units
SRM Q'ty	Max. 1,500	Max. 20,000
Q'ty of cells	Max. 300 ST	Max. 99 ST/crane
Q'ty of ST for storage and retrieval	Max. 1,500	Max. 20,000
Q'ty of Part Numbers	Part numbers (8 digits)	Pallet No. (30 digits)
Part No' information	1	20
Q'ty of Mixed Loads		

STANDARDS

BUILT to Order

The user can choose the necessary functions from the selectable options.

Inexpensive System

TOYOTA support the most inexpensive user-friendly system with some selectable options.

Minimum Operation Errors

User-friendly TOYOTA standard system minimize the error.

System retrofit & renewal

Replacement of existing old AS/RS application.

SRM, controls, and LCS are available for retrofit & renewal "Call TOYOTA now".
TOYOTA will be a new AS/RS system supplier by the Partial Inexpensive retrofit job.

CUSTOMIZE

Customized System Design

The customized system is available which fully satisfy the customer's requirements for AS/RS Operations.

1. Advance Type Model Servo Motor Drive Model

Advance Type Major Specifications

		6m Type	10m Type
Load	Load Spec (w/Bucket) (mm)	350 – 700(W)×300 – 890(l)×20 – 450(h)	
	Load Capacity (w/Bucket) (kg)	50kg (Option 50kg×2(300-450)(l))	
SRM	Travel Speed (m/min)	300	250
	Hoist Speed (m/min)	100	
	Forking Speed (m/min)	50	
Power	Primary Power Spec.	Control Panel Power	3 Phase
		PC & Aux Units	Single Phase
		3 Phase	3 Phase
		Single Phase	Single Phase

2. Standard Type Model High Cost Performance Standard Design Model

Standard Type Major Specifications

		5m Type	10m, 15m Type
Load	Load Spec (w/Bucket) (mm)	350 – 700(W)×300 – 890(l)×20 – 450(h)	
	Load Capacity (w/Bucket) (kg)	50kg (Option 50kg×2(300-450)(l))	
SRM	Travel Speed (m/min)	Max 100-Min4 Inverter Drive (Optional high Speed Model : Max160-Min4, Max200-Min4)	
	Hoist Speed (m/min)	Max31.5-Min4 Inverter Drive (460-890(l) : Max40-Min4)	Max40-Min4 Inverter Drive (Optional high Speed Model : Max100-Min4)
	Forking Speed (m/min)	Max40-Min4	Inverter Drive
Power	Primary Power Spec.	Control Panel Power	3 Phase
		PC & Aux Units	Single Phase
		3 Phase	3 Phase
		Single Phase	Single Phase

SRM Speed is selectable to meet the load Spec & Rack Spec.

References



Advance Type



Combination System



Standard Type

TOYOTA's Best Logistics solutions to Maximize the Customer's Satisfaction & Profit



AS/RS for pallet

Rack Sorter^P



AS/RS for pallet Building Type

Rack Sorter^{BP}

Storage Systems



Rack Sorter^{B/B} FLEX



Partner Rack Transfer Type

Other Material Handling range

ELECTRIC POWERED FORKLIFTS



7FBE series



7FBR series

Material Handling Systems



TUG CART



Road Sorter



AGV Forklift



Sky Sorter



Mobile Sorter

TOWING TRACTORS



CBT series



4CBT(Y) series