

Discover ASRS Latest & Greatest Applications & Technologies at ProMat



PROMAT[®] 2015

McCormick Place South | Chicago
March 23-26, 2015
promatshow.com

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Presented by:

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What is ASRS?

- Goods-to-Person System brings loads to/from the ASRS
- Automated system for storing and retrieving loads (items, boxes, totes, pallets, bins, items, etc.)
- Computer/software controls to make everything work together as a “system”



ASRS Benefits?

- Eliminates up to 2/3+ labor
- Saves 85%+ floor space
- Increases accuracy levels to 99.9%+
- Improves ergonomics
- Inventory reduction & accuracy
- Reduced product damage
- Extend cut off times

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ASRS is Evolving...



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Many Types of ASRS

**Crane
Based**



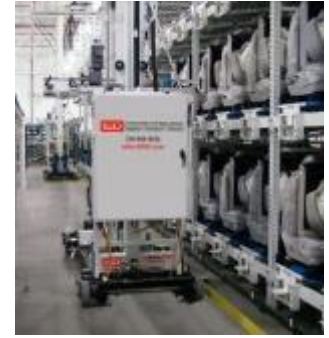
Totes and Boxes



Trays



Pallets



Non-Standard

**Shuttle
Based**



Totes and Boxes



Pallets



ASRS Applications:

- Pallet Systems
 - Finished goods storage
 - Raw materials storage
 - Ready reserve for case picking
 - Shipping sequencing or buffering
 - Frozen storage
- Box or Tote Systems
 - Each order picking
 - Production kitting
 - Order consolidation
 - Case buffering
 - Case sequencing before palletizing
 - Sequencing buffer in manufacturing

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Latest and Greatest in ASRS

- Very Fast Performance:
 - Pallet
 - Case / Tote
- Load handling device options

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NEW: Pallet Shuttle ASRS

Fast access to low & medium SKUs

Speed of this solution makes it very good for:

- Supporting case picking operations
- Sequenced truck loading



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NEW: Tote / Carton ASRS



Shuttle Technologies – use multiple devices through rack

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NEW: Load Handling Devices



How do you handle the variety?



How do you handle the raw packaging with no pallet or special carrier?

There are many new types of load handling devices.....

NEW: Load Handling Devices



Telescopic Fork

- Ideal for beverages

Telescopic Fork w/Lateral Belt Transfers

- Stable handling of cardboard cartons



Side Gripping Arms With "Fingers"

- Allows storage and retrieval from shelving



Dual Pallet Handling



Rotating Turret ASRS

Application Information

	Loads	Load Weight	Throughput	Application	Markets
Mini-Load ASRS	Tray storage	Up to 750 lbs.	1 load per minute	Dense storage, picking	Wholesale, manufacturing
Mid-Load ASRS	Pallet, Case, Tray, Unique Load	Up to 2,000 lbs.	Up to 3 loads per minute	Storage, buffering, sequencing, picking	Manufacturing, CPG, Food
Shuttle Technology Based ASRS	Case / Tote	Up to 65 lbs.	Very High. Dependent on number of shuttles	Buffering, sequencing, picking	E-commerce, retail, wholesale, grocery, food
Unit Load ASRS (With shuttle forks)	Pallets	2,000 to 4,000 lbs.	Up to 1 load per minute	Pallet storage, case picking support	Food, CPG, manufacturing
Unit Load ASRS (With in-rack vehicles)	Pallets	2,000 to 4,000 lbs.	Less than 1 load per minute	Low SKU, super dense storage	Beverage, Food, CPG
Pallet shuttles (Typically with in-rack vehicles)	Pallets	2,000 to 4,000 lbs.	High. Dependent on number of shuttles.	Low SKU, super dense storage high throughput	Beverage, Food, CPG

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MINI-LOAD

Mini-Load ASRS

- High availability
- Can be used at temperatures as low as -30°C
- Compact, weight-optimized design





Mini-Load ASRS

Specifications				
Max Width	Max Depth	Max Height	Weight/Load	Transactions/minute
800 mm.	900 mm.	500 mm.	100 kg.	Variable
31.5"	35.4"	19.7"	220 lbs.	Variable

- Handles:
 - Cases/Totes
 - Trays

Mini-Load ASRS

- Can handle/move (4) 12" totes on (1) Load Handling Device (LHD) with for maximum efficiency
- Allen Bradley PLC controls available



Mini-Load ASRS

Specifications				
Max Width	Max Depth	Max Height	Weight/Load	Transactions/minute
16"	48"	16"	2 x 100 lbs.	Variable

- Handles:
 - Cases/Totes
 - Unique Loads/Items
 - Trays

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MID-LOAD ASRS

Mid-Load ASRS

- Surface mounted for flexibility, portability and cost effectiveness
- Up to 180 transactions per hour
- Very customizable



Mid-Load ASRS

Specifications				
Max Width	Max Depth	Max Height	Weight/Load	Transactions
60" or Custom Sizes	96" or Custom Sizes	up to 96" or Custom Sizes	2,000 lbs.	Up To 180 Transactions/Hour

- Handles:
 - Pallets
 - Cases/Totes
 - Trays
 - Unique Loads/Items

Mid-Load ASRS

- Aisle Changing Cranes
 - Matches throughput requirements
 - Emergency redundancy
 - Flexibility can reduce capital acquisition costs



Mid-Load ASRS

Specifications				
Max Width	Max Depth	Max Height	Weight/Load	Transactions/Minute
40" or Custom Sizes	48" or Custom Sizes	up to 78" or Custom Sizes	3300 lbs. or Custom	Depending on rail length & aisle height X speed = 10'/sec Y speed = 3.3'/sec

- Handles:
 - Pallets
 - Cases/Totes
 - Trays
 - Unique Loads/Items

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SHUTTLE TECHNOLOGIES, ROBOT, HYBRID CRANES

Shuttle Technology

- Suitable for picking, storage, buffering, sequencing or replenishment
- Trays can handle wide variety of products
- Suitable for sensitive, fragile or high value products





Shuttle Technology

Specifications				
Max Width	Max Depth	Max Height	Weight/ Load	Transactions/ minute
20"	10.5"	9.5"	35 lbs.	10-16 picks/minute

- Handles:
 - Trays

Shuttle Technology

- Good-to-Person, redundancy
- High density solution (low sq. footage)
- Flexible, Scalable, Modular





Shuttle Technology

Specifications				
Max Width	Max Depth	Max Height	Weight/Load	Transactions/minute
16"	24"	12"	65 lbs.	5

- Handles:
 - Cases/Totes
 - Unique Loads/Items

Shuttle Technology

- High velocity in/out
- Variety of applications: picking, palletizing, buffering
- Handles cartons, totes, trays in variety of sizes





Shuttle Technology

Specifications				
Max Width	Max Depth	Max Height	Weight/Load	Transactions/minute
25.6 "	34.4"	23.6"	110 pounds	per application
650 mm	875 mm	600 mm	50 kg	per application

- Handles:
 - Cases/Totes
 - Trays
- Unique Loads/Items

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UNIT LOAD ASRS (WITH SHUTTLE FORKS)

Unit Load ASRS (with shuttle forks)

- Aisle Changing Cranes
 - Construction height up to 45 m
 - Payload 8,500 kg"
 - Temperature range - 40 to +60 °C





Unit Load ASRS (with shuttle forks)

Specifications				
Max Width	Max Depth	Max Height	Weight/Load	Transactions/minute
6 m	3 m	45 m	8,5 t	300 m/min

- Handles:
 - Pallets
 - Unique Loads/Items

Unit Load ASRS (with shuttle forks)

- Application flexible
single or multiple loads
- Single or dual masts
- Freezing temperatures
(-30° C),
extreme humidity



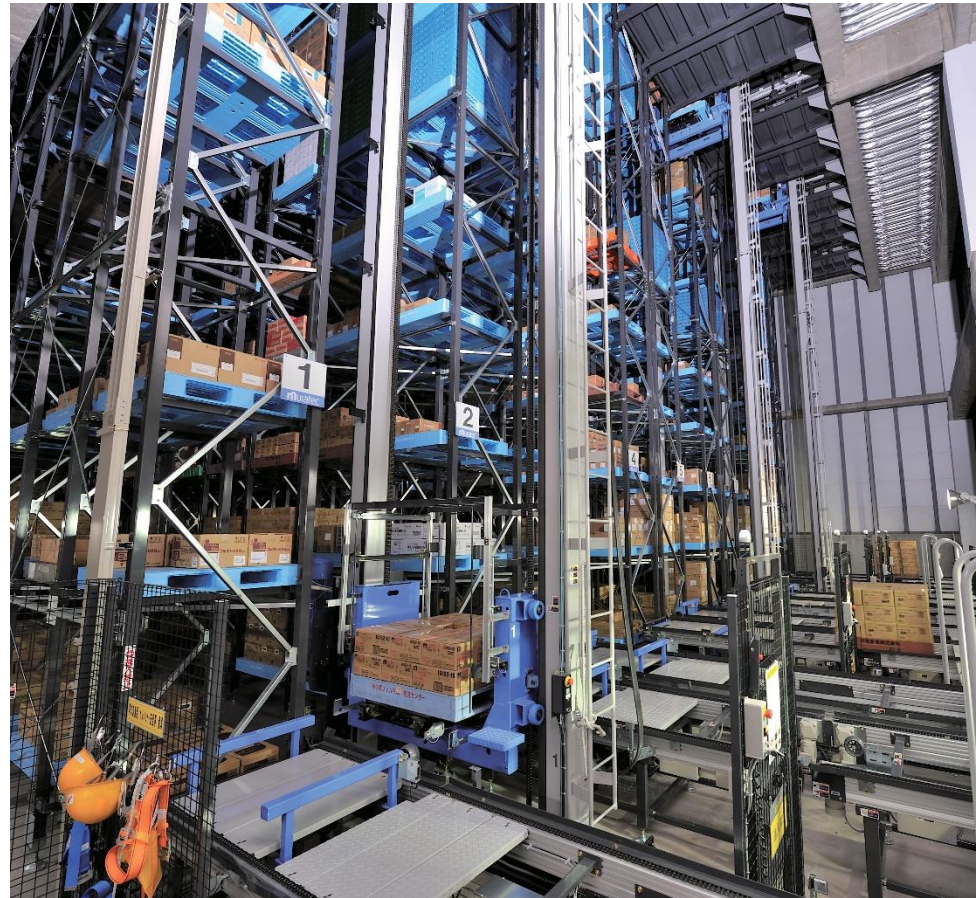
Unit Load ASRS (with shuttle forks)

Specifications				
Max Width	Max Depth	Max Height	Weight/Load	Transactions
Variable	Single to Triple Deep	135 feet	up to 7,000 lbs.	speed 13 feet/second

- Handles:
 - Pallets
 - Cases/Totes
 - Trays
 - Unique Loads/Items

Unit Load ASRS (with shuttle forks)

- 4m - 35m high
- Can incorporate picking system
- Can be upgraded to heavier loads or higher speeds





Unit Load ASRS (with shuttle forks)

Specifications				
Max Width	Max Depth	Max Height	Weight/Load	Transactions/Minute
59"	59"	79"	2,800 lbs.	.66/min.

- Handles:
 - Pallets
 - Unique Loads/Items
 - Trays

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UNIT LOAD ASRS (WITH IN-RACK VEHICLES)

Unit Load ASRS (with in-rack vehicles)

- High Density Storage
 - Stores 3 to 18 pallets deep
 - Eliminates unusable space in your existing building by 40%



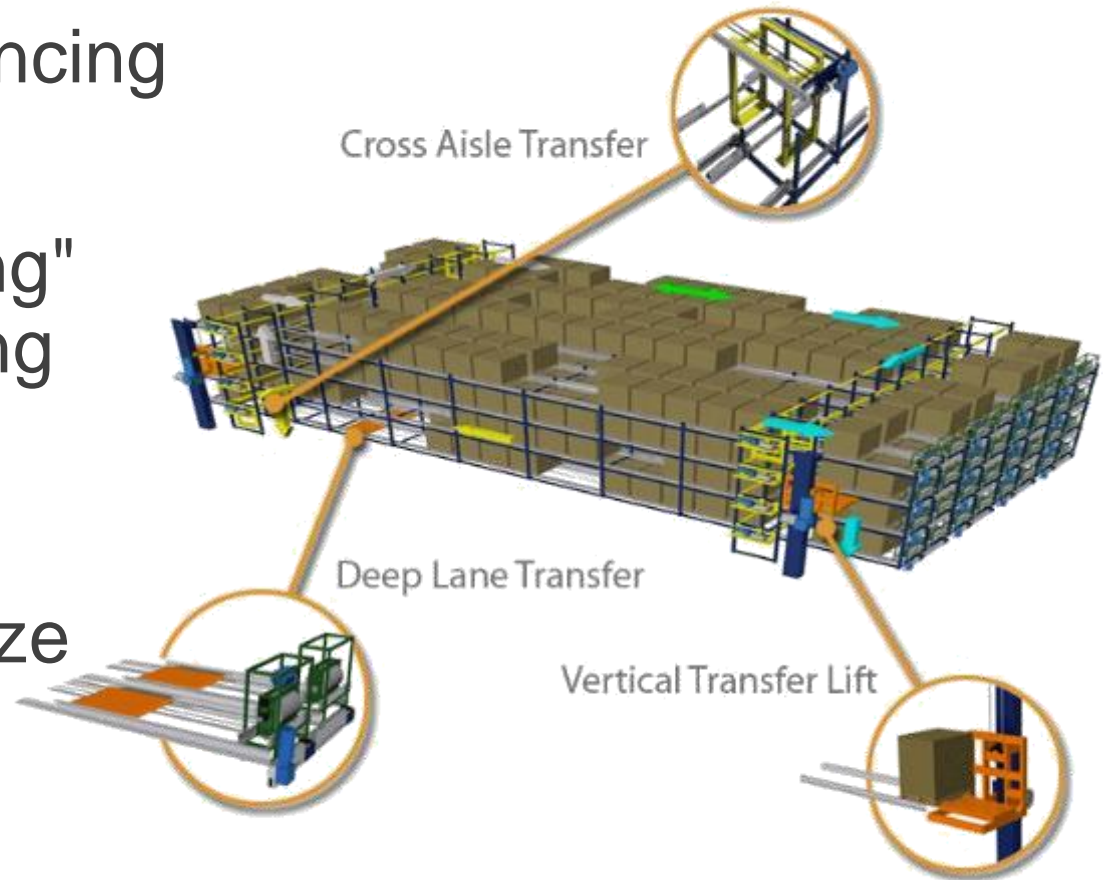
Unit Load ASRS (with in-rack vehicles)

Specifications				
Max Width	Max Depth	Max Height	Weight/Load	Transactions/minute
48"	40"	Variable	16,000 lbs.	Variable

- Handles:
 - Pallets
 - Unique Loads/Items

Unit Load ASRS (with in-rack vehicles)

- Truck load sequencing within the system
- “Intelligent learning” software for storing product based on usage
- Algorithms optimize cost based storage/retrieval locations



Unit Load ASRS (with in-rack vehicles)

Specifications				
Max Width	Max Depth	Max Height	Weight/Load	Transactions/minute
Custom	Custom	Custom	3,300 lbs.	Custom

- Handles:
 - Pallets
 - Unique Loads/Items



ASRS Application Criteria

- Major Criteria:
 - Selectivity required to your stored items
 - Velocity or throughput required from the system
 - Return on Investment (ROI) requirements
 - Factors: labor, floor space, inventory levels and above



Take Aways

- ASRS has been a good intra-logistics solution for decades
- Recent technical advances have expanded the range where ASRS can apply
- These same advances also improve the business case for ASRS
- If you are looking to go ahead or beat the competition, investigate ASRS and do the ROI numbers!

Member Companies



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