FIND YOURS.

The Benefits of ASRS for Warehouse Automation

Presented by:
Automatic Storage Retrieval System Industry Group
Presenters

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Dematic
Who we are

- Leading automated storage/retrieval systems suppliers
- Mission: To deliver remarkable value to our members, channel partners, industry associates and end users, by creating the awareness and market growth of Automated Storage and Retrieval Systems (AS/RS) technologies
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**FIND YOUR WOW**
The Benefits of ASRS for Warehouse Automation

Automated storage and retrieval systems (ASRS) enable warehouse operations to be efficient and productive while reducing operating costs. See how an automated storage solution can be the most effective method of buffering, sequencing and storing inventory in your operation.

Key Takeaways
• Understand the many ways an ASRS can optimize your operation
• See examples of how ASRS is being applied today
• Review the compelling business benefits realized with ASRS
Agenda

• Process Improvement
• Benefits
• ASRS applications
Process Improvement
X = Industry Pressures

• Reduced order processing time
• Optimize: inventory, labor, equipment
• Reduce # touches
• Continuous flow of material
• Access to data for reporting throughout enterprise
• Cost per piece, case, pallet
Issues

- Space
- Labor, Ergonomics
- SKU Growth
- Accuracy
- Throughput & Processing Time
- Access
Your Business Model

Examples:

- Accommodate more SKUs than competitors
- Extend order cut off time
- Promotional/seasonal peaks
Process Improvement: Production

• Inbound
• Materials storage
• Kitting
• Work in process buffer
• Finished goods storage
• Outbound staging
Process Improvement: Distribution

- Receiving
- Storage
- Replenishment
- Order fulfillment
- Order consolidation
- Palletizing
- Outbound staging
Benefits of ASRS
Control

Feature
- Strategic material flow
- Software directed
- Improved inventory control
- Controlled access to inventory
- Inventory accuracy
- FIFO, LIFO, FEFO rotation
- Efficient storage location logic

Benefit
- Process improvement
- Productivity, real time control
- Precise item tracking; omit “lost” items
- Accommodate sensitive SKU’s, omit theft
- Improved order accuracy
- Assure use of appropriate inventory
- Optimized put-away & retrieval
Space

**Feature**
- ✓ Compact system footprint
- ✓ High density
- ✓ Temperature controlled apps

**Benefits**
- ✓ Reduced building & land cost
- ✓ More storage in less space
- ✓ Less energy costs
Labor

Feature
✓ No staff in ASRS
✓ Goods-to-person
✓ Reduced product damage
✓ Fewer manual fork trucks
✓ Contain manual fork trucks

Benefits
✓ Less labor to operate
✓ Omit travel time
✓ Lower costs
✓ Safer, omit damage to rack, facility & product
✓ Manual fork trucks omitted from intra-facility tasks
Example: Temperature Controlled Environment

- **Control**: accuracy, optimized put-away, tracking
- **Space**: energy cost
- **Labor**: harsh environment
Types of ASRS

Cube Storage

Shuttles

Vertical Carousels

Horizontal Carousels

Miniload Crane

Pallet Crane
ASRS Applications
Data Analysis

Inventory profile
- Review year to see if mix changes
- Check days on hand

Order profile
- Determine activity & need to access “A’s, B’s” & “C’s” daily, weekly, monthly

Labor breakdown
- Where is labor used?
- Determine time spent on picking & replenishment
Activity Profiling

The systematic analysis of the items & orders handled in the DC determines the optimum design & operation

1. Total SKU’s
2. % daily SKU’s active
3. Orders per day
4. Daily unit volume
5. Units per order
6. Lines per order
7. Packing sequence
8. Unit cube & cube movement
9. Unit structure
10. Cartons per order
11. Order download
12. % volume cross-docked

- Review historical data
- Forecast future activity
Labor (activity) & Storage requirements

A - 5%
B - 6%
C - 89%
Inventory Storage
Totes, cases, pallets
WIP Buffer ASRS
Finished Product Storage
ASRS with Goods-to-Person
(SKUs to Picker)

1. Travel time
2. Omit pick face
3. Omit re-slot
4. Accurate
5. Less space
6. Security
7. Optimized replenishment
8. Ergonomic
9. Engineered work stations
10. Speed
11. Productivity
12. Less labor
13. Staff accordingly
14. Sequencing
Store in Tote

- Automated storage
- Put-away, de-cant
- Inventory buffer
- Put to order workstations
- Pack & ship
Workstation

Decant:
- Unload product
- Items to totes
- Totes to storage

Order picking:
- Donor tote on conveyor
- Pick from donor tote
- Put to shipping container
Kitting, Spare Parts, Documents
ASRS, bins

- Manufacturing
- Airplane & vehicle parts support
- Maintenance & repair operations
- University libraries
Auto Replenishment
Two Aisle Configuration

Tote – ASRS
- Store & replenish by tote or case
- Single or multiple SKUs per container
- Pick from sides
Auto Replenishment
Case Pick to Conveyor
Case Pick to Conveyor
Light Directed
ASRS Palletizing Engine
Mini-load ASRS Hybrid System

- Low velocity SKUs in ASRS
- Goods-to-person picking
- Zone route conveyor for high velocity SKUs
Business Case for ASRS

**Feature**
- ✓ Load sequencing engine
- ✓ Strategic inventory management
- ✓ Software directed
- ✓ Improved inventory control
- ✓ Controlled access to inventory
- ✓ Inventory accuracy
- ✓ FIFO, LIFO, FEFO rotation
- ✓ Efficient storage location logic

**Benefit**
- ✓ Supports picking, kitting, palletizing, buffering, storage
- ✓ Process improvement
- ✓ Productivity, real time control
- ✓ Precise item tracking; omit “lost” items
- ✓ Omit potential of theft
- ✓ Improved order accuracy
- ✓ Assure use of appropriate inventory
- ✓ Optimized put-away & retrieval
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For More Information

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