Adaptive Conveying

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Adaptive Conveying

- What is Adaptive Conveying
- Benefits of Adaptive Conveying
- AGV Applications
- Conveyor Applications
- Summary
What is Adaptive Conveying

• Versatile
  – Ability to handle a large range of products
  – Ability to easily operate on different input voltages
  – Ability for an AGV to change conveying appliances on the fly to accomplish different tasks

• Reconfigurable
  – Adjustable (on the fly) heights
  – Line Reconfiguration
  – Line Repurposing

• Smart, Integrated, Programable and Connected
  – Self Aware
  – Self Adjusting
  – Integrated with AGV’s and external systems
Benefits of Adaptive Conveying

• Maximizes Use of Space
  – Ability to use different line configuration based on shift, day of the week, time of the year, etc
• Provides Scalability
  – Modularity allows systems to be expanded or retracted very easily
• Prepares for the future of conveying technology
  – Modular systems allow new technology to be integrated easily into existing systems a small piece at a time
• Minimizes Maintenance Costs
  – Self aware systems can provide maintenance warnings as well as in some cases make necessary adjustments to minimize maintenance and maximize productivity
Elements of Adaptive Conveying

- AGV Appliances
  - Lifting
  - Pallet Turning
  - Transportation
  - Robotics
- Conveying “carts”
  - Manual Sorting
  - Automated Sorting
  - Transportation
  - Accumulation
  - Gravity
- Smart Systems
  - Self tensioning systems
  - Preventative Maintenance Detection
AGV Applications

• Conveying Appliances
• Possible Conveying Applications
  – Chain Driven Live Roller
  – Belt Driven Live Roller
  – Belt Conveyor
  – MDR
  – Chain Conveyor
  – Conveyor with 90 degree chain transfers
• Ability to handle weights in excess of 20,000 lbs
AGV Applications

• Custom Product Conveying
  – As an example, difficult to convey items such as tires can be transported through a plant using customizable conveying appliances
  – Gravity and Powered solutions are possible
  – On board electronics make devices compatible with multiple manufacturers of AGV’s
  – Also includes custom product “trailers”
AGV Applications

- Lifting Appliances
  - Ability to adjust for ergonomics between different work stations
  - Ability to transport product/pallets between different levels
  - Sized appropriate for required loads
  - Possible in electric only and hydraulic versions
  - Ability to have appliance on a trailer and moved manually or with an AGV
AGV Applications

• Robotics
  – Allow for precise pick, place, and sorting between multiple work stations
  – Allow for maximized equipment utilization by moving equipment between lines during downtime (i.e., can manage multiple non-continuous processes/task with one piece of equipment)
  – Advanced Storage and Retrieval techniques are possible
  – Advanced maintenance and preventative maintenance is possible
  – Automated truck loading and unloading
Conveyor Applications

- Conveying and Sorting
  - Chain Driven Live Roller
  - Belt Driven Live Roller
  - Belt Conveyor
  - Accumulation or Transport
  - Curves and Transfers
  - Ball Tables
- Manual Sort Lines
  - Reconfigurable based on shift, time of year
  - Common equipment across different sized facilities
  - Ability to adjust for peak periods
Conveyor Applications
Conveyor Applications

• Automated Sort Lines
  – Reconfigurable based on shift, time of year
  – Common equipment across different sized facilities
  – Ability to adjust for peak periods
  – Ability to add and remove sort lanes
  – Ease of expansion
Conveyor Applications

• Truck Loading
• Able to service multiple dock doors with one piece of equipment
• Able to load different sized/length trucks
• Multiple options and configurations
Conveyor Applications

- Portable Belt Inclines
  - Can be used to service multiple docks
  - Can be utilized for truck loading and unloading
  - Reversible belt on a portable cart
  - Adjustable incline angle
Smart Systems

- Preventative Maintenance
  - Automatically detect product jams
  - Automatically detect belt slippage
  - Detect failing bearing
  - Detect failing motors and drives
  - Send maintenance notifications
- Automation
  - Combined with sensors, make automatic adjustments to belt and chain tension
  - Adjust speeds automatically based on product size, weight, and sort requirements
Summary

- Adaptive Conveying lets you rethink your DC
- Easily test and integrate new technology
- Reconfigure based on volume and needs
- Allow product mix to change on the fly
- Add in “smart sensors” for improved efficiency and preventative maintenance
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