## Modern Materials Handling: Solutions for supply chain professionals April 2001

## CONVEYOR E-NEWSLETTER

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### Conveyor choices

Selecting the right unit load conveyor system for the job ensures that your products roll along smoothly

Finding the right unit load conveyor depends primarily on the items to be moved. The product's weight, size variance, stability, consistency, and bottom surface affect how it will convey. Some conveyors are best suited for particular applications and products. The key is to choose the right conveyor for the job. Here are some of the more common systems in use.

#### Skatewheel

Skatewheel conveyors use a series of small metal or aluminum wheels aligned in rows. These units are non-powered and rely on gravity for conveying. They are ideal for moving sacks or bags down an incline. They are also found in shipping areas and used to convey products down specific lanes for loading into outbound trucks.

Since they do not have motors, skatewheel systems are typically inexpensive and are often portable. They are also very economical to maintain.

"Skatewheels do save a lot of money on drive costs, but it is often hard to control the product on them," explains Phil Schaafsma, vice president of operations for DPI Material Handling Systems (800-294-3190, www.dpisystems.com). DPI is a design, supply, and integration firm based in Grandville, Mich.

Since there are no motors to force items along, products may catch or stick on skate-wheel conveyors. Therefore, it is recommended that their use be limited to short runs and areas that are easily accessible.

#### Belt

Belt conveyors are the most commonly used devices. They are ideal for general transport of light and medium weight product throughout a facility. They are also among the least expensive to buy and maintain.

The belt rests on a constructed bed. Motors slide the belt along, which in turn moves the products resting upon it. With a large amount of surface area contacted between belt and product, these conveyors produce sufficient friction to make them ideal for transporting items along inclines or declines and for conveying odd shaped items.

#### Sliding bed

Sliding bed conveyors are suited for unstable loads that travel at low speeds. They are often located at load stations and assembly stations. Similar to belt conveyors, these systems typically convey products on an unpainted metal surface that slides along a bed. Since the bed is solid, there is a large amount of surface contact area, making these conveyors ideal for odd shaped items and small items that are not placed into totes.

#### **Live Roller**

Live roller conveyors are also a common fixture in distribution centers and manufacturing facilities. These systems feature a series of elongated rollers mounted across the conveying bed. Belts, chains, or line shafts power the rollers.

Belt driven systems usually require less maintenance and offer the lowest overall cost. Chain systems are more complex. Line shaft systems allow for quick changes in flow and are often chosen for systems that involve right angle transfers and diverts. Line shaft units also tend to be quieter.

Live roller systems are well suited to a wide range of product conveying. Many facilities

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with a varied product mix choose live rollers. They can handle heavy loads and are also ideal for dirty or harsh conditions. Products can easily merge into these systems as well as divert to other lines. They are also used to accumulate product.

Factors to take into account is that products must have a solid bottom and sufficient weight to ride properly on the rollers. Loose articles can easily fall between rollers, therefore it is recommended that items be either boxed or placed into totes.

#### Accumulation

Systems that include work-in-process or require a buffer often use accumulating conveyors.

"If processes aren't running entirely smoothly within a facility, accumulation allows the product to back up without stopping the rest of the work flow," says Schaafsma.

They are commonly used at workstations or for preparing product before it enters a sortation system. Accumulation systems consist of rollers or belts that power and stop automatically to provide spacing between cartons as directed by either photo eyes or sensing rollers.

Accumulating conveyors are more expensive and require additional controls and motors than many other systems, but the benefits in flexibility outweigh the added costs.

NEXT MONTH: What you need to know before you install a conveyor system.

