

Vertical Conveying 101

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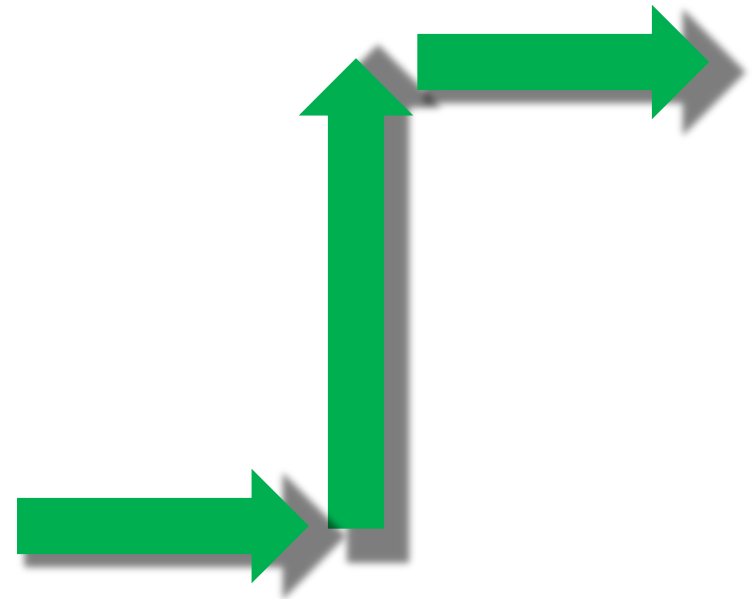


Presented by:

Peter Pralle, Vice President
of Special Engineering

What is Vertical Conveying?

- Vertical conveying is movement of objects from one level to another using conveying devices.
- Movement can be up or down.
- Vertical conveying always includes the transfer from a horizontal conveying device to a vertical conveying device and then again to a horizontal conveying device.



Types of Vertical Conveyors

- Human Hoist
- Reciprocating Vertical Conveyor
- Scissor Lifts
- Continuous Vertical Conveyors
- Vertical Indexing Conveyors
- Spiral Conveyors
- Fork Type Conveyors
- Drones



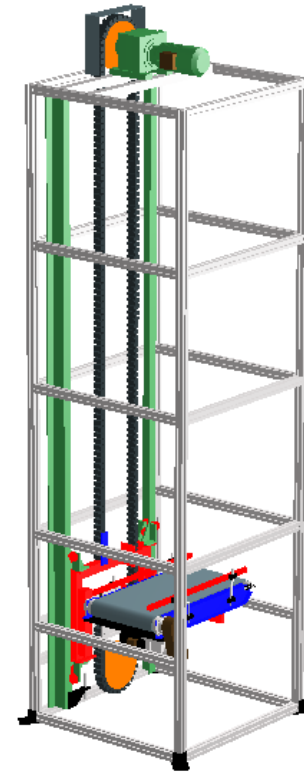
Human Hoist

- Most simple “device”, can connect between different conveyor in a flexible way with flexible lift heights
- Throughput: low
- Reliability: medium to low



Reciprocating Vertical Conveyor

- Transport of items in a reciprocating manner on horizontal conveyors
- Used to convey boxes, totes, pallets, trays, luggage and other items
- Multiple Level Stops on the vertical are possible
- Up to 5 items per minute, depending on number of stops and height
- Discharges in all 4 directions are possible
- Designs come in 2 - and 4-column designs and columnless designs
- Simple controls include may safety features



Scissor Lifts

- Can be used in vertical conveying when a horizontal conveyor is placed on the lift surface
- Anything the placed conveyor can handle can be conveyed
- Up to 4 items/min, the higher you lift the less through put you have
- The feed and discharge can be multidirectional depending on the conveyor configuration placed on them
- Lifting height is limited due to scissor principle (typ. 60")



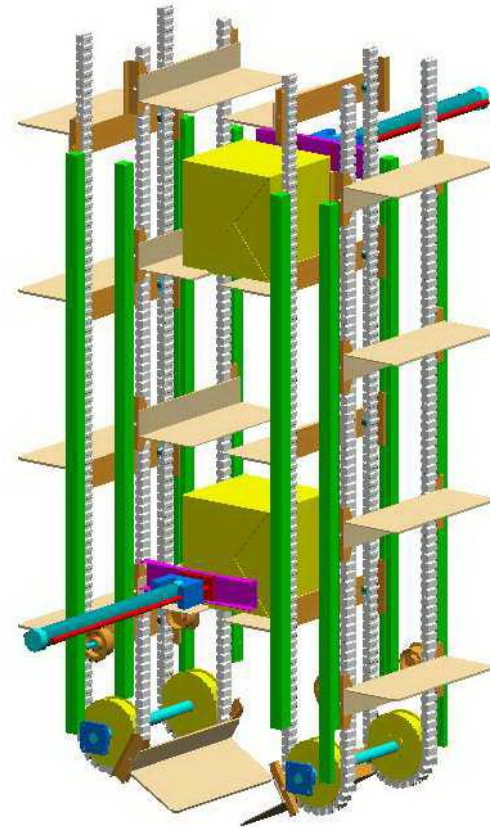
Continuous Vertical Conveyor

- Transport of items in a continuous manner on platform/trays from horizontal to vertical to horizontal and transfers items to the next conveyor
- Used to convey boxes, totes, pallets, trays, luggage and many odd shaped items
- Up to 60 items per minute
- Configurations in S and C shape possible
- Simple controls include many safety features



Vertical Indexing Conveyors

- Lifting of items in an indexing manner on half shelves. Feeding of conveyor can be with belt-, roller- or other conveyors or with a pusher
- Used to convey boxes, totes, pallets, trays and other items that are uniform to be carried on a shelf
- Up to 60 items per minute
- Configurations in S and C shape possible. Feed and discharge can be placed on any level.
- Stores and buffers items while transporting
- Simple controls include may safety features



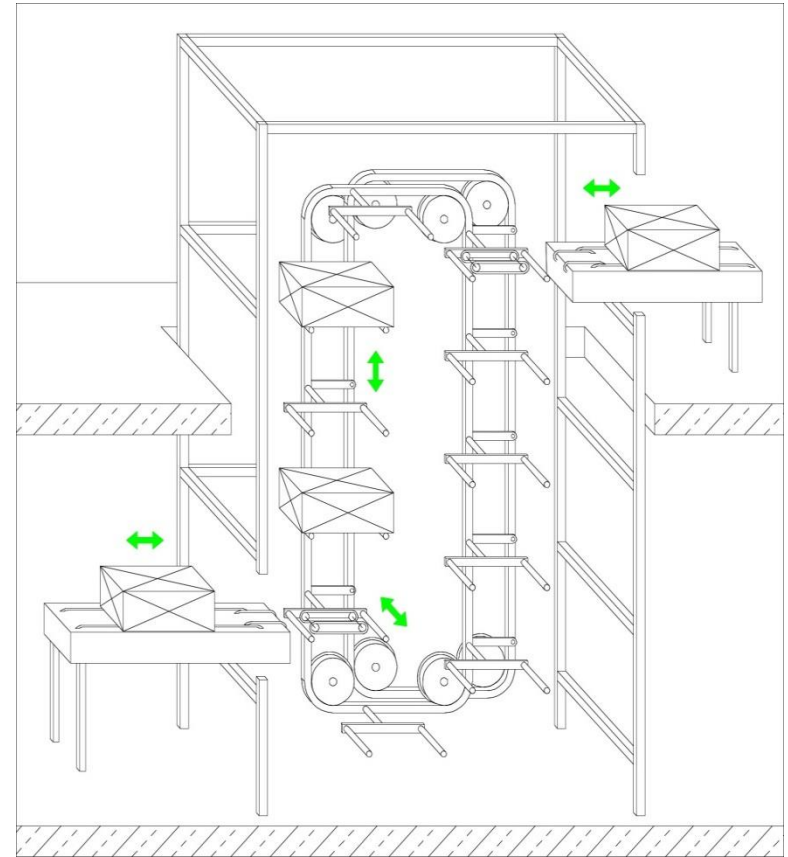
Spiral Conveyors

- Transport of items in a continuous manner from one level to another in a spiral motion
- Used to convey boxes, totes, and trays
- Capacity is up to a total of 3600lbs at 200FPM per conveyor
- Configurations can be multidirectional, but the direction of the discharge is dependent on lifting height
- Simple controls include may safety features
- Items will be slanted while being transported on the conveyor



Fork Type Conveyors

- Transport of items in a continuous manner on forks from horizontal to vertical to horizontal and transfers items to the next conveyor
- Used to convey boxes, totes and trays
- Up to 100 items per minute
- Configurations are in S and shape
- Simple controls include may safety features
- The item weights are limited due to the forks



Bucket Conveyors

- Transport of items in a continuous in buckets from horizontal to vertical to horizontal and transfers items to the next conveyor
- Used to convey small sturdy and odd shaped items
- Up to thousands of items per minute
- Configurations in S and C shape and multiple feeds and discharges are possible
- Simple controls include may safety features



Drones

- End of the Line equipment
- Very flexible
- Addressable designation
- Throughput dependent on delivery range
- Safe to use?



Drones a new technology?
Really....



Choosing the vertical conveyor that is right for your application

Here are some factors you need to take into consideration when choosing a Vertical Conveyor:

- ROI (Return on investment) = Overall cost over the life of the conveyor or life of the use of the conveyor
- Overall height limitations
- Space constraints
- Is it usable in your environment
- Do not over or under size the equipment
- Power consumption
- Ease of maintenance
- Amount of maintenance
- Proven in the field
- How do other users like their equipment
- Is there anything else you need to make the systems run reliably



Maintenance

- A comparison of the different conveyor types is very difficult as you have to look at aspects of moving parts interacting with different materials transported in different climates and work environments
- In general you can say:
less moving parts = less maintenance
- Carefully check the manufacturers for overall maintenance requirements
- If possible talk to end users of the same types of machines in same or similar work environments



Summary

- Vertical Conveying is a complex field.
- There are many choices
- Make a qualified decision on a the chosen Equipment
- Any manufacturer will guide you to find the right product
- Listen to what they have to say about their product and not about their competitors product



...about the CSS and the Speaker



The Conveyor & Sortation Systems (CSS) members within MHI are the Industry's leading providers of conveyors and sortation systems. They design, fabricate and install conveyor and sortation systems worldwide and in virtually every major manufacturing and distribution sector. CSS prepares and distributes educational and promotional materials regarding the proper application and benefits of conveyor and sortation system solutions.

Peter Pralle

has over **30 years** of design and custom solutions **experience** in the Conveying Industry

more than 26 years of that in Vertical Conveying with NERAK Foerdertechnik in Germany and **NERAK Systems** in the USA working with Piece good vertical conveyors and powder and bulk vertical conveyors



Discussion and Questions

- Vertical conveyor related
- Types of Conveyors
- Products conveyed
- Connection to other conveyors
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For More Information:

Speaker email: pralle@nerak-systems.com

Website: www.nerak-systems.com

visit us at MODEX 2016 Booth 2547

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Thank you

