CONVEYING TECHNOLOGY
LOADING TECHNOLOGY
PALLETIZING TECHNOLOGY
PACKAGING TECHNOLOGY
SORTATION AND
DISTRIBUTION SYSTEMS

BEUMER 1D-Comb Tray Sorter
with Linear Motor Drive
The layout below shows a system configuration for sorting CD’s, video cassettes and books. The scanners, labeling machines and sorter control are integrated with the customer’s data processing system. Merchandise is scanned and routed according to product type. Labeling machines print and then apply in-store labels to the moving product. CD’s and video cassettes are conveyed by automatic induction lines to Comb Trays on the outer loop of the sorter. Books are inducted to the inner loop of the sorter. For every discharge point, the filling level of the tub is monitored by sensors and then visually displayed. When the tub is full it is manually exchanged with an empty tub. The discharge mechanism for this destination is disabled until the empty tub is in position and the safety shutter is returned to the closed and locked position.

A routing label is applied to the full tub, then the operator pushes the tub onto a take-away conveyor for routing to the shipping area.
BEUMER 1D-Comb Tray Sorter with Linear Motor Drive

Application

This system is designed especially for sorting and stacking flat items such as:

- CD's
- video cassettes
- books
- catalogues
- letters
- textiles

The precise discharge movement of the 1D-Comb Tray Sorter ensures a high density stack pattern and gentle sortation to the destination.

For example, apparel items can be discharged directly into tubs or cartons. Thus, additional handling such as manual packing can be avoided.

The available volume within the tote or tub can be automatically optimized.

Destinations are specifically designed for the project application. For example, CD's or video cassettes are automatically stacked. The stacks are then automatically indexed to await the next process.

Beumer's Comb Tray technology allows significant savings in labor and handling costs.
The sorter frame consists of two anodized aluminum profiles with integrated track rails. The maintenance free carriage assemblies are completely enclosed.

Destinations are located immediately below the comb tray. This ensures sortation directly into tubs, chutes or onto discharge conveyors.

Discharge of the item is initiated by a pop-up brush which is located at the destination. This device consists of a rotary solenoid and brush. Pneumatic cylinders may also be used instead of the rotary solenoid.

When activated by the sorter control, the brush is rotated from a horizontal to a vertical position and engages the ‘combs’ of the on-coming tray. The brush sweeps the item from the moving tray and into the destination. Product orientation is maintained during the entire discharge process.

According to the individual project requirement, the tubs can be exchanged manually or automatically.

For example, destinations have been developed for a publishing house which required sorting directly into reusable tubs. The publisher also required that the books be stacked.

The flexible design of the Comb Tray Sorter permitted an arrangement whereby the books are sequentially sorted and stacked in the same operation.

Individual books are sorted to an indexing conveyor. When the Comb Tray discharges the book onto the conveyor, the conveyor is engaged and transports the book into an inclined tub.

A fixture holds the tub in an inclined position. Tub elevation is automatically adjusted as it is filled, maintaining a constant relationship between the top of the stack and the transport conveyor.

When the tub is filled, a device is actuated which releases the tub onto a take-away conveyor.

Structure and Function

1 Comb trays
2 Induction conveyors
3 Carriage assembly
4 Pop-up brush
5 Discharge onto transport conveyor
6 Discharge directly into tubs
The trays of the 1D-Comb Tray Sorter can be attached to one or both sides of the carriage assembly which doubles sorter capacity.

With a max. sorter speed of 1.5 m/s (5 fps) and a tray pitch of 375 mm (15 in), the capacity is:

- 14,400 trays per hour with 1 tray per carriage
- 28,800 trays per hour with 2 trays per carriage

Drive

The linear motor drives are mounted below the two profiles of the sorter frame and are attached via channel nuts. Since the channels are part of the aluminum profile, they are continuous with the sorter track. The drives can be easily installed at any position along the track.

Sortation Capacity

The trays of the 1D-Comb Tray Sorter can be attached to one or both sides of the carriage assembly which doubles sorter capacity.
PROGRAM OF SUPPLY

CONVEYING TECHNOLOGY

- Conventional and closed belt conveyor systems
- Overland conveyors also in curved design
- High capacity belt and chain bucket elevators
- Apron conveyor systems with chains or steel cable reinforced belts as traction element
- Bag handling systems for packing plants
- Screw conveyors in various designs

LOADING TECHNOLOGY

- Plants for loading of bulk or bagged material onto trucks, into railroad vehicles and ships
- Semiautomatic railcar unloading machines
- Automatic bag loading systems for trucks and containers

PALLETIZING TECHNOLOGY

- Palletizing robots
- Automatic high capacity palletizers
- Automatic depalletizers
- Pallet conveying systems

PACKAGING TECHNOLOGY

- Stretch wrapping
- Shrink wrapping
- Stretch hood wrapping
- Palletless shrink wrapping

SORTATION AND DISTRIBUTION SYSTEMS

- Computer-controlled handling, sorting and distributing systems for piece goods
- Routing controlled conveying of pallets and collected loads

The information contained in this brochure merely serves as a non-binding description of our products and is without guarantee. Binding information, in particular relating to capacity data and suitability for specific applications, can only be provided within the framework of concrete inquiries.

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