



BULK FEED TO SINGULATOR: PROCESS OPTIMISATION

THE NEW SORTING SYSTEM IS BASED ON THE INDUSTRY'S MOST ENERGY-EFFICIENT SORTER

When PostNord decided to invest in a new parcel centre at Veddesta near Stockholm, Sweden, the priority was to improve logistics services for its customers in addition to reducing the amount of traffic going through the centre of Stockholm, and reducing fuel costs and carbon dioxide emissions. These objectives led PostNord to consider innovative ideas and technologies to ensure the centre's economic efficiency and its environmental sustainability.

HIGHLIGHTS

- Integration of automatic parcel singulation to streamline the entire sortation process.
- Sortation system design configured for maximum flexibility and efficiency based on the carton sizes, numbers and peak days.
- Veddesta Terminal business case based on minimising the cost per item whilst also maintaining high levels of customer service and speed.

LOGISTIC SYSTEMS POSTNORD PARCEL TERMINAL

INVESTING IN THE FUTURE



The choice of the right sortation system was crucial for achieving PostNord's objectives for the Veddesta Terminal. BEUMER Group's vision for the new sorting system was based on the industry's most energy-efficient sorter backed by a forty-year partnership with PostNord in implementing successive generations of sorter technologies.

BULK FEED TO SINGULATION: PROCESS OPTIMISATION

The system at the Veddesta Terminal is based on BEUMER Group's LS-4000CB cross-belt sorter and includes conveyors, inductions, chutes, scanners and Automated Parcel Singulators to increase the efficiency of the sorting process. The sortation system offers the flexibility to receive parcels and to deliver them to the appropriate dispatch points with minimum human intervention or heavy lifting. The complete system is controlled by BEUMER Group software featuring flexible user control.

The integration of parcel singulation is important for streamlining the entire sortation process: Parcels arrive at two bulk in-feed areas via fully automatic container tippers and boom conveyors and are grouped to be fed into the two Automated Parcel Singulators. Parcels enter the singulator's in-feed module in bulk and travel through a set of skewed roller conveyors onto a section of individually controlled belts. This enables the parcels to leave the singulator as a single stream of evenly-spaced items which are ready to enter the automatic induction for the cross-belt loop sorter.

The singulator automatically detects any double parcels, such as those which are side-by-side or overlapping, as well as any that are too long, too high or too thin. These items are diverted to a separate conveyor line for re-introduction into the parcel stream.

Whether integrated into a new sorting system, as in the Veddesta Terminal, or retro-fitted to an existing loop sorter, singulation streamlines the flow of parcels to optimise the workflow. A control interface links the Automated Parcel Singulator to the downstream induction line for the loop sorter. This enables the singulated flow of parcels to be optimised to match the capacity of the induction. When there is capacity available at the induction to the loop sorter, the Automatic Parcel Singulator releases more parcels and, conversely, it reduces the parcel flow when the induction has reached maximum capacity. The Automatic Parcel Singulator is also linked to the upstream bulk in-feed system so that the entire process is optimised to balance fluctuations in the workload.



IN ORDER TO SUPPORT FASTER THROUGHPUT AND EASIER HANDLING THE LS-4000CB SORTER DISCHARGES PARCELS TO THREE DIFFERENT TYPES OF CHUTES FOR PALLETISING:

- Spiral chutes with consecutive roller lanes for manual palletising or fine-sorting into a roller cage for one of twelve different destinations
- Chutes with extendable boom conveyors for dynamic loose loading directly into lorries or swap-bodies
- Chutes for loading smaller parcels directly into corrugated bulk boxes or roller cages

LOOP SORTER TO DISPATCH: FLEXIBILITY & EFFICIENCY

The parcel flow is carried from the Automated Parcel Singulator to the induction for the LS-4000CB crossbelt sorter which is configured with two belts for each cart. The use of Linear Synchronous Motor (LSM) technology enables the LS-4000CB sorter to cut energy consumption by up to 75% compared to sorters with conventional motor technology.

BEUMER Group's design for the sorter enabled it to be configured for maximum flexibility and efficiency based on PostNord's specifications for the size and number of cartons as well as the days on which peak volumes would be expected. One example of the system's flexibility is that parcels are cross-loaded at the inductions, allowing the sorter to handle items up to 1200mm in length on a single belt.

PROFITABILITY WITH SUSTAINABILITY

The business case for investing in the new Veddesta Terminal was based on minimising the cost per item whilst also maintaining high levels of customer service and speed. The new sorter has enabled PostNord to increase the flexibility of its sorting process in addition to minimising cost and the environmental impact of its business.





SYSTEM OVERVIEW:

- > 594m LS-4000CB cross-belt sorter with up to 75% saving in energyconsumption
- > Two groups, each consisting of:
- > 4 fully-automated tipper containers
- > 2 Automatic Parcel Singulators
- > 4 inbound boom conveyors
- > 3 induction units
- 52 spiral chutes directly onto roller lanes
- > 20 spiral chutes directly onto boom loaders
- > 40 direct chutes
- > Spiral chute for no-read items
- > Spiral chute for reject handling
- > Overweight discharge
- BEUMER Group SCADA and software controls for system-wide optimisation
- System integrated with 6-sided ID camera scanning and OCR
- > Capacity: 11,250 items/hour.





See the sortation system in action at the PostNord terminal: www.beumergroup.com/post-parcel



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