



AUTOMATED AND ENERGY-EFFICIENT MAIL TRAY PROCESSING

HOW POSTEN NORGE HAS USED THE BEUMER GROUP SORTER TO REVOLUTIONISE ITS MAIL CENTRE OPERATIONS

Posten Norge – the Norwegian Postal Service – has the ambition of developing into the leading mail and logistics corporation in the Nordic region, in tandem with becoming the world's most future-oriented mail and logistics group.

A major element in this forward-thinking approach is the development of an attractive workplace with a good working environment for its 2,500 staff.

An outstanding example of this intention can be seen at Posten's Østlandsterminalen mail centre in Oslo, where a strategy was implemented to reduce manual handling and heavy lifts and to create a single automated flow through the operation by combining a number of automated actions.

HIGHLIGHTS

- A new energy-efficient sortation/distribution system with auto storage and robot palletising.
- Trays are automatically transported and sorted to a dynamic storage system according to destination and departure time.
- The system collects, sorts, stores and palletises more than 10,000 mail trays an hour.

THE AUTOMATIC TRAY HANDLING SYSTEM



To help achieve Posten's aim, at the end of 2008 BEUMER Group was awarded a contract to supply and integrate an Automatic (letter) Tray Handling System (ATHS) based on a new energy-efficient sortation/distribution system with auto storage and robot palletising.

The completed project, known as the Automatic Tray Handling System (ATHS), was put into operation in the spring of 2010. It is capable of collecting, sorting, storing and palletising more than 10,000 mail trays an hour, setting a new standard for short-flow, high-accuracy mail handling. In addition, it also achieves Posten Norge's aim of creating a safer working environment for employees by considerably reducing the amount of manual handling that staff have to carry out.

In line with Posten Norge's technologically advanced ambitions, this is first mail centre to install BEUMER Group's highly

energy-efficient LS-4000CB cross-belt sorter as part of an automatic tray-handling process. As a result of being powered by linear synchronous motors, as opposed to the conventional linear induction motors, the LS-4000CB achieves energy savings of up to 75 percent.

At the mail centre, trucks arrive with pre-sorted mail, which is taken to different areas for processing depending on the type of item and required process for small letters, flats and small parcels. Letters are handled in the letter sorting area where, after sorting, they are filled into trays according to the destination and manually loaded onto conveyors for automatic induction to the ATHS using an LS-4000CB cross-belt sorter. Flats are handled similarly in the flats sorting area. Small parcels and large letters/flats are handled in the multi-sorter area where BEUMER Group has delivered and installed another three cross-belt

sorters. There, items are loaded into trays and automatically conveyed via spiral conveyors for induction to the ATHS.

Having reached the ATHS, the trays are automatically transported and sorted to a dynamic storage system according to their destination and departure time. The storage is a small-scale 'high bay' storage system in four layers in front of which the sorter loops in four layers to feed all levels. The tray storage has 248 lanes that hold 24 trays each. This dynamic storage is actually a standard storage system that, prior to this installation, was typically used in large grocery distribution centres.

BEUMER Group developed and designed the software for the dynamic storage to interface with direct feeding from the ATHS sorter to all lanes as one of the functionalities required by Posten Norge's ATHS concept.



SYSTEM OVERVIEW:

- LS-4000CB cross-belt, 484 m
- Capacity: 10.000 totes/h
- Inductions: 7
- Chutes: 124
- Tote size: Length 400 mm, width 300 mm, height 190 mm (max.)
- Dynamic storage capacity: 5.952 letter trays
- 4 robot cells for palletising letter trays. Total capacity: +6.000 totes/h
- 1 robot cell for feeding of empty trays and pallets.

In the dynamic storage, the BEUMER Group Tray Management System at Østlandsterminalen accumulates the letter trays in lines. When a line of letter trays is ready for dispatch it is automatically released from storage and conveyed to robot cells for automated palletising.

There are four redundant robot cells, each with two robots for high capacity palletising. A fifth robot cell takes care of automatic feeding of empty letter trays and empty pallets. There is also one area for manual palletising and one of the cells takes care of automatic feeding of pallets and empty letter trays. Screens above the robot cell indicate shipping destination and routes when the pallet is ready for dispatch, at which time it is moved by forklift to the appropriate shipping marshal area prior to loading on trucks according to the destination shown on the screens.

The contract is an extension of a long-term partnership between BEUMER Group and Posten Norge and further reinforces BEUMER Group's stature as a leading global supplier of advanced mail and parcel handling systems. The new system is a success as it helps Posten Norge to minimise health and safety risks by significantly reducing manual handling. In addition, by switching to a fully automated system, staff relations are strengthened by freeing operators to take on more challenging multitask roles.



When a line of trays is ready for dispatch it is automatically released from storage and conveyed to robots for automated palletising.



AUTOMATIC TRAY HANDLING SYSTEM (ATHS) SUMMARY

The system integrates a fully-automatic dynamic storage and conveyor system. This will link all of the receiving, preparation, letter, flats, magazines and the rest of the mail process handling and despatch areas, as well as providing a dynamic storage system for mail trays prior to the delivery to the robotic palletizing system. The complete installation is managed by controls software written and implemented by BEUMER Group.

