



LOW ENERGY, HIGH SPEED

The combination of low energy and high speed made the system with CrisBag® and LS-4000 from the Crisplant® product range the perfect baggage handling solution for Helsinki Airport.

Helsinki Airport handles nearly 15 million passengers a year, and with 130 non-stop destinations around the world and 350 departures a day, is the leading long-haul airport in northern Europe. Growth over the years has necessitated major redevelopment, which commenced in 2009 with the expansion of Terminal 2 and the renovation of Terminal 1.

Part of the reason for the expansion of Terminal 2 was to accommodate a new Baggage Logistics Centre (BLC).

HIGHLIGHTS

- › CrisBag is a highly modular system. The same components are used many times throughout the system, making it extremely attractive from a spare parts and manufacturing point of view.
- › The transfer monitor tool allows Helsinki Airport to have a unique overview of delayed incoming flights carrying transfer baggage.
- › The baggage handling system allows Finavia to claim a low minimum connection time between flights.

BAGGAGE HANDLING WORKFLOW



From the check-in areas in Terminals 1 and 2, conventional take-away conveyors transport the bags down to the apron level, where they are transferred to the tote-based CrisBag® system. This rapidly moves them via a tunnel to the BLC, where they are discharged onto conventional conveyors for security screening. At this point transfer bags are also merged into the flow.

As a unique feature, BEUMER Group has developed a transfer monitor tool that allows Helsinki Airport to have a unique overview of delayed incoming flights carrying transfer baggage. The system alerts automatically for the airport to act in time and ensure that these bags reach their connecting flights - even when time is limited.

Also implemented in the new system are manual encoding stations at each check-in, thereby ensuring that the baggage handling system can continue uninterrupted even if the connection to the departure system is down.

Cleared bags are diverted directly to two LS-4000 sorters for final sortation, both of which service all make-up positions, or back to the CrisBag system for storage in the early bag storage as necessary. Bags that fail the security screening undergo further processing.

The total length of the baggage handling system is over 10km and its peak capacity is 7,000 bags an hour. The system at Helsinki Airport is designed with 86 chutes as a special request for always having the system to perform an automatic final sort to flight. That way there is no need for the handlers to perform the final sort to destination.



ORIGINS

One of the main reasons for Finavia's choice of Crisplant for this project was the speed of the system. On long uninterrupted stretches the CrisBag tote-based system can increase speed to 7m/s.

A further feature of BEUMER Group's proposal that weighed in its favour was its energy efficiency and the fact that the LS-4000 sorters had a much lower power consumption than competing systems was an important factor in Finavia's decision. Low power usage is especially important for airports because power is a large proportion of operational costs.

The power-saving efficiency of the LS-4000 sorters is mainly due to the innovative use of a linear synchronous motor instead of a standard linear motor, which alone can save up to 75 percent of energy use. However, there are further smart features behind the system as a whole.

It is not only the LS-4000 sorters that have an energy saving feature. The CrisBag system is also energy efficient because its intelligent control system has a look-ahead feature that can tell when a tote is approaching. The belt only starts running in time for it to be up to speed when the tote reaches it.

A further advantage of CrisBag is that it is highly modular, so the same components are used many times throughout the system, making it extremely attractive from a spare parts and manufacturing point of view.

A final feature that gives CrisBag an advantage over a conventional belt conveyor solution is that the CrisBag system can handle out-of-gauge baggage on the same track and at the same speed as normal size bags using a larger tote.

The entire baggage handling control system at the airport has been updated with the latest high level and low level controls from BEUMER Group's own software suite. Replacing software in a running airport is always a challenge and BEUMER Group once again drew on its vast expertise, with no disruption to the operation of Finavia's flagship airport.

The new high level control system is based on one single SAC for all four terminals. This design gives the control room a single entry overview of the baggage handling system. Still, should the SAC be unavailable, the individual software suite modules continue unobstructed to ensure continued BHS operation.

SYSTEM OVERVIEW:

Complete baggage handling system including:

- › Check-in system
- › Collecting and transport conveyors
- › CrisBag high-speed system for interconnection
- › LS-4000E tilt-tray sorters
- › Make-up system including double chutes, laterals and racetracks
- › Oversize outbound system (using CrisBag system)
- › High level control systems (SAC and SCADA)
- › Low level control systems (PLC systems)
- › CrisBag EBS capacity: 1,500 bags
- › Manual encoding positions
- › Multilevel, inline Hold Baggage Screening (HBS) system.

