



DÜSSELDORF AIRPORT PREPARED FOR GROWTH

Germany's third largest airport, Düsseldorf Airport (DUS), has installed a new CrisBag® baggage handling system in Terminals B and C. The installation represents the completion of the airport's ambitious 'Reconstruction and Expansion of the Baggage Sorting System' project, with around 100 million euros in new investment.

The installation enables the airport to handle an ever-growing number of passengers with a high level of flexibility from a much leaner baggage handling system (BHS).

"We are investing in the future since our passengers' need for mobility is increasing all the time," emphasises

Düsseldorf Airport Managing Director, Michael Hanné. "We chose CrisBag® technology as the backbone of our BHS operation because it better equips us to face the challenges inherent in our daily operations. The system is not only one of the most advanced on the market, but it also allows us to connect gates seamlessly with one another, optimising baggage handling across Terminals B and C."

HIGHLIGHTS

- › The 8.5-kilometre CrisBag® baggage handling and transport system links all three terminals, integrates two EBS areas and can handle over 10,000 bags/h.
- › The new CrisBag uses the highest number of common elements to deliver the operational and maintenance benefits of a modular system.
- › Three standalone systems have been replaced with a single baggage handling control system to connect all three terminals.

BAGGAGE HANDLING INNOVATION



TENDERING FOR BAGGAGE HANDLING INNOVATION

On average, Düsseldorf Airport handles nine million outbound baggage items per year, and the number continues to grow.

The BHS replacement project, implemented by BEUMER Group, capitalised on the need to upgrade the X-ray screening units to meet new ECAC 3 standards. While this was being completed, it was decided to expand the project to modernise the BHS system in Terminal B and include connections to Terminals A and C.

In the subsequent tender, potential suppliers were asked to put forward unique ideas for a BHS capable of fulfilling future needs. The winning design was entered by the BEUMER Group and incorporated the CrisBag® tote system. This system provided integrated screening and acted as a link between all three existing terminal areas.

Once a bag is loaded into a CrisBag® tote at Düsseldorf, it remains in that tote until the laterals or make-ups are reached

for the final destination. Using RFID technology, in-tote screening allows 100% track-and-trace of each bag at any stage in the baggage handling process.

In the design offered to Düsseldorf Airport, a gradual replacement of two existing sorters created space for the additional early bag storage (EBS) positions. The additional EBS positions eliminated the need to invest in a temporary terminal building. This approach resulted in a design which combined a more compact layout, energy-efficient technology and low maintenance levels which significantly lower BHS operating costs.

INSTALLATION DURING LIVE OPERATION

All rebuilding and modification work had to be undertaken during live operation, resulting in a very detailed and phased installation and commissioning process. In total, there were 13 phases to ensure that sufficient capacity was available for the day-to-day operation of the airport. The two existing sorters in Terminal B were replaced by two CrisBag® loops. A lane-based CrisBag® EBS was



integrated between the sorting loops, and an additional EBS was installed in the connecting tunnel to give Düsseldorf Airport the highest flexibility. The BHS configuration also provided future proofing by automating loading processes to help increase overall passenger convenience.

Following the successful completion of upgrade work in Terminal B, the airport operator decided to continue the upgrade in Terminal C based on the principle of “more of the same”, and BEUMER Group’s team moved to work on the upgrade to the Terminal C BHS. With CrisBag® now integrated throughout Terminal B, the link to Terminal C would be provided by a 175-metre underground baggage transport tunnel.

Once again, implementation during live operation required intensive coordination with constant and consistent interaction between stakeholders and the BEUMER Group project management team. The project had to be carefully planned in steps to ensure

impact on operations was as close to zero as possible.

“Düsseldorf is the biggest airport in the region, so we had to ensure the absolute minimum disruption during the upgrade work. As was the case in Terminal B, the new Terminal C baggage sorting facility had to be installed while we were fully operational,” says Marcus Rütten, Project Director, Düsseldorf Airport. “Tests were only done at night and still BEUMER Group managed to have the entire system up and operational on time. Now, with a brand-new BHS in Terminals B and C, our combined baggage handling hall operation is much more flexible.”

ADVANCED TERMINAL UPGRADE

In Terminal B, the airport had to change the X-ray screening machines to meet security screening standards. They took the opportunity to revamp the X-ray machines to a more modern process with in-tote screening integrated into the CrisBag® system. To further future-proof the solution, the system was designed to include connections between Terminals

A and C. This was part of an ongoing strategy to upgrade the airport’s X-ray screening units to meet ECAC 3 standards.

There are 1,272 EBS positions on CrisBag® lanes between the sorting loops, with an additional 420 positions in the connecting tunnel between the terminals. This ensures that Düsseldorf Airport has the most flexible and redundant baggage handling operation.

The installation of an advanced BHS with similar equipment enables Düsseldorf to handle the increasing number of passengers with complete control and connection of all three terminals. The features integrated into the BHS deliver a leaner and more flexible operation which future-proofs the airport and help deliver higher passenger satisfaction.

BAGGAGE HANDLING SYSTEM TERMINAL B

- › Complete CrisBag® system.
- › CrisBelt® conveyors incl. curves.
- › 26 dynamic tilters.
- › Integration of 10 Smiths Heimann machines to comply to ECAC Standard 3 screening regulations.
- › 1,272 EBS positions on CrisBag® lanes between sorting loops.
- › Additional 420 EBS positions in the connecting tunnel.
- › Two flat make-up carousels and 12 straight lateral lanes.
- › Integration of 11 Nerak S-Type elevators and one conventional baggage lift.
- › Integration of SCADA and CrisBag® control system.
- › Upgrade to new SAC and CIS during live operations.



BAGGAGE HANDLING SYSTEM TERMINAL C

- › Complete CrisBag® system.
- › CrisBelt® conveyors incl. curves.
- › Integration of four Smiths Heimann machines to comply to ECAC Standard 3 screening regulations.
- › Three flat make up carousels and two straight lateral lanes.
- › Lifts, vertical sorting units and centering conveyors.
- › Upgrade of Terminal B controls to integrate Terminal C.

