Beijing Airport

Baggage handling system for one of the world’s largest airports

Success story

Airport Logistics
The customer

As owner of Beijing Airport, Beijing Capital International Airport Company Limited (BCIA) provides all the services required for operation. The company, in which Capital Airports Holding Company owns a majority stake, has 1,400 employees.
Beijing Shoudu Guoji Jichang ranks among the largest airports in the world both nationally and internationally, and it continues to grow. In the years from 2000 to 2007 alone, passenger volume rose by 150%. In order to cope with this dramatic growth and to prepare for the additional influx of passengers during the 2008 Olympic Games, construction of the new terminal T3 began in 2004.

British star architect Norman Foster designed the glass-and-steel building shaped in the form of a giant dragon. The 68-km-long baggage handling system was planned and realized entirely by Siemens, and was a challenging assignment in every respect.

Planning with the future in mind
In view of the expected volume of passengers, it was clear from the outset that the baggage handling system would have to be one of the largest and most modern in the world. It would not only have to cope with today’s baggage flows but also be adequate to handle the volumes forecast for 2015.

Technically challenging baggage routing
The terminal’s spacious dimensions imposed tough requirements in terms of baggage transport speed and, to an even greater extent, control of individual material streams. Since all operations in an airport are closely interlinked, every minute counts when transporting bags between two connecting flights. Rigorous standards are therefore necessary to make sure minimum connecting times are met.

Tight time schedule
One of the biggest challenges was the extremely tight time schedule. Airport projects of this size normally require about five years. In this case, though, the date of the Olympic Games in 2008 dictated the time schedule, which meant that the project had to be completed within only three years.
The sheer size of the new terminal is impressive, covering an area of about one million square meters. There are 316 check-in counters for passengers, which guarantees fast processing. They are linked directly to a tray conveyor system that transports the baggage items over a 68-km-long network to their destinations. The network is divided into three zones: terminals T3A and T3B and a 2.2-km connecting tunnel.

Our solution: 19,200 baggage items sorted and transported every hour
Movement at all levels
T3A is the terminal for domestic flights. All departing passengers check in here at level 4. The baggage carousel for arriving passengers is located at level 2. The actual sorting of the bags takes place at an underground level of the terminal. Baggage arriving here passes through the state-of-the-art 5-level security screening and is then sorted. The baggage for domestic flights is then transported one level higher and transferred to the carousel there. Baggage for international flights is transported through the tunnel at a speed of 36 km per hour to the loading carousel in international terminal T3B.

A balanced solution mix
The baggage handling system consists of a combination of high-speed tray conveyors, conveyor belts, and tilt-tray sorters, controlled by a complex material flow computer. There are over 9,000 Siemens motors installed across the entire system, controlled by 109 SIMATIC S7 PLCs. The trays are equipped with RFID tags. Thanks to the precisely coordinated components and the extremely efficient software, 19,200 pieces of baggage can be checked in, sorted, and transported per hour.

Problem-free project management
Siemens brought this system from the design stage through to commissioning in just three years. The baggage handling system at Beijing Airport is now making a crucial contribution toward ensuring that everything runs speedily and smoothly round the clock. Our internationally networked team ensured that all components, from the reliable conveyor system through to carefully matched drive technology and IT software, interact perfectly in order to achieve the required performance.

Ready for 47 million passengers a year:
The baggage conveyor system from Siemens is one of the largest and most modern of its kind.
 Targets achieved:  On their way worldwide in 25 minutes

Despite the tight time frame and the extensive area we successfully completed one of the largest and most modern baggage handling systems in the world in time to go into operation on schedule. It was handed over by Siemens to the airport operator Beijing Capital International Airport (BCIA) after a construction period of just 32 months.
High throughput, high reliability
The system can sort and transport up to 19,200 items of baggage per hour. The total time the system takes to move a bag from one parked aircraft to another is less than 25 minutes.

Advantages all round
For the passengers this means faster processing and shorter waiting times for the arrival of their baggage. Airport operators profit from shorter minimum connecting times, an advantage that has a direct impact on the number of aircraft taking off and landing.

Ready for the Olympics and beyond
There is now nothing to stop the capacity of the airport being increased to 43 million passengers a year. Beijing Airport is thus perfectly prepared to handle the rush of passengers for the Olympic Games in August 2008.
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Order No.: E10001-ALBL-A7-V1-7600
Printed in Germany
Dispo No.: 12212 K No.: 28108
GB 071134 312503 W5 05081.5
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