A 40-kilometer conveyor network has been installed in the new Terminal 2 at Munich Airport. Not only does it allow baggage to reach its destination at high speed, it also makes the airport one of the world’s fastest for connecting flights.

Flying Suitcases

Since the end of June 2003, passengers at Munich Airport have been enjoying the benefits of even smoother, more rapid baggage handling processes. It now takes as little as 30 minutes for transfer passengers to catch a connecting flight, a new European record. And yet most passengers are unlikely to notice the outstanding logistical achievements that make all this possible. In an area covering some 50,000 square meters in the basement of Terminal 2, their baggage is zipped at 25 kilometers per hour from one conveyor belt to another. The system, which was built by Siemens, is based on a completely new concept and can transport up to 15,000 baggage items per hour. Each bag or suitcase is loaded into a small plastic tub that can be tipped to the left or right to ensure that the luggage is expelled at the right place. “With the tub system, we can be sure that none of the suitcases get stuck. What’s more, it’s faster than conventional conveyor-belt systems,” explains project manager Peter Wachendorfer from Siemens Dematic. In the last three years, about 1,000 Siemens employees have been busy developing and implementing the system at the Terminal 2 construction site and at the company’s location in Fürth. The system was developed in cooperation with consortium partner Crisplant.

Shortest Routes. The new transport system makes use of a redundant computer system, almost 200 Simatic S7 controls and over 19,000 frequency-controlled electric motors — all from Siemens. “For every single piece of luggage, the computer determines the shortest route from the point where it is tipped into the baggage-transport system to the final belt for the right departing flight,” says Wachendorfer. “Or, in the other direction, to the correct conveyor for an incoming plane.” When a suitcase is tipped in, scanners register the barcodes on the baggage label and the tub, recording the suitcase and its container as one transport unit. From this point on, the only thing that’s relevant to the system is the barcode on the tub, which is attached on every side and is easily readable. “This is another reason that the system in Munich is faster than conventional conveyor-belt systems, where the labels attached to the baggage sometimes get twisted, making them difficult to read,” explains Wachendorfer. About 27,500 photoelectric barriers and 400 container scanners are employed at a total of 500 junctions to ensure that the bags are correctly guided through the system. “If a problem is registered in a particular part of the route,” says Wachendorfer, “the computer...
A new terminal doubles the annual capacity of Munich Airport to 50 million passengers. About 1,300 employees are involved in making baggage handling as smooth as possible.

comes up with an alternative and redirects the baggage."

Since the beginning of the year, airport requirements have called for every individual bag or suitcase to be checked. This process is somewhat faster in Terminal 2 than in Terminal 1. "We’ve completely integrated the security checks into the new system," reports Wachendorfer. "On its journey, all baggage automatically goes through the first X-ray stage. If anything unusual is spotted, it goes through stages two and three as well. Meanwhile, the computers check whether each item in the hold can be assigned to a passenger on board the plane." All of the logistical threads behind the high-speed conveyor sys-

Up to 15,000 items of baggage can be transported with the new system every hour. The logistics behind it are monitored in the Siemens baggage control center (below).