





The other side: The project as seen from the south – including a view of the top floor.

products such as Cool and DGR, planning of an ideal scenario was conducted between January 2011 and May 2011. In the context of this Greenfield approach, typically ideal processes as well as engineering and layout alternatives for every single process were developed based on the sizing parameters processing times, capacities, and flight plan. Alongside the experience gained from other logistics plants, benchmark visits to nearly all modern air cargo terminals worldwide, as well as numerous tests and experiment configurations in operational running were the main pillars of the decision-making. Lufthansa Cargo attached particular importance to integrating the operating staff, since they will be handling the new installations later.

At the same time, the “search” for the future construction site was conducted. It soon became evident that in order to ensure connectivity the through-passage, the new hub would have to be built on the premises of Lufthansa Cargo in the north of Frankfurt Airport. A way had to be found to on the one hand clear the construction site for the new building, and on the other enable operations, which would be on-going there during

the construction work, to continue as smoothly as possible.

The real scenario planning conducted between May 2011 to September 2011 involved having to bring together ideal processes, choice of engineering, and layout design on the one hand, and the real construction site on the other. In addition there were various requirements regarding land and airside transport planning and access, security gates and buffer options for truck and Dolly traffic, as well as the necessity for certain construction stages involving demolition, construction and commissioning, in order to create functional areas prior to certain building sections being able to be dismantled.

Ban on night-time flights necessitates planning rethink

In September 2011 the Executive Board of Lufthansa Cargo approved the concept and detailed planning could begin. The fine-tuning of the processes and engineering that now commenced was conducted in a manner that integrated Logistics Technology and IT, meaning that the details of the individual processes were worked out in mixed teams,

such that the impacts and requirements of both sides could be taken into consideration in the process design. However, during the detailed planning phase, every logistics planner’s nightmare became reality. The ban on night-time flights at Frankfurt Airport, which was passed in the fall of 2011 and finally came into force in spring 2012, primarily affected Lufthansa Cargo, whose cargo aircraft often operated at night. As such the company was forced to revise the original planned capacity and reduce the new hub’s annual capacity by approx. 20 percent, from 2 million tons to 1.6 million tons. This meant, however, that for the time being the whole dimensioning and layout design of the real-scenario planning was nixed, there was no getting round a planning rethink. This occurred in Q2-Q3 2012 and was rewarded with the approval in September 2012 by the Lufthansa Supervisory Board of the overall budget for the new hub.

With the Lufthansa Supervisory Board having given its approval, the next stage of the project could get under way. Logistics Technology and IT had the task of drawing up the tender documents and place them on the market, which happened in April 2013. The search for a construction planner for the building and the outside facilities was intensified and completed in spring 2013, such that the project team now embraces nearly 100 internal and external experts. Over the next few years these people will be responsible for successfully completing the project – the plan is for the entire hub to go turnkey by about 2018.

Frank Weigl, a project manager on the Miebach Consulting side said of the project: “It’s a big team for a big task, currently the biggest in Logistics in Germany, probably in Europe. We are all proud to be part of it.”

Structure of the new cargo hub

Plans for the new hub envisage two production levels, with the buffer areas reaching a height of approx. 30 meters. Landside, in the set-back section in the west there are ramps (approx. 115 m wide) for loading and unloading RFS and

customer-trucks, which deliver or pick up (ULD-ramps) assembled air cargo palletes. On the northern side of the building there are ramps for the delivery and collection of loose deliveries by sprinters or trucks (total width approx. 250 m). The production areas are the heart of the ground floor. This is where the actual assembly of the air cargo containers takes place. Empty palletes or containers are delivered, which staff members then fill with the prepared freight before securing it. Afterwards, the palletes are automatically taken to the ULD buffer.

Dolly interfaces, the belly hall, and freight gates represent the airside interfaces. Whereas loose cargo is loaded onto freight wagons in the belly hall before being taken to aircraft by the apron service provider, the Dolly interfaces are used for loading and unloading the dolly wagons, which are used to transport the finished ULDs to and from the aircraft, should it not be parked directly in front of the building.

The airplane positions right in front of the building are called flight gates. These are primarily used for loading and unloading cargo planes. The advantage the new positioning of aircraft entails is the possibility to load and unload without intermediate transport using Dolly vehicles. From the ULD buffer the ULDs are automatically delivered close to the aircraft airside, where they can be loaded and unloaded using swap-body trucks and high loaders.

On the upper story above the truck and sprinter ramps on the northern side there are offices and social areas. Adjoining it there is a 70-meter deep area with an automatic buffer for loose cargo. Known as the SLT shipment buffer, it is 30 meters high and extends across the entire width of the main building, approx. 250m. In the area south of the SLT shipment buffer there are smaller functional areas for the maintenance and loading of material handling equipment and forklift trucks, checking stations for post processing packages as well as working stations for assembling smaller 5-ft. ULDs. Smart Gates with integrated x-ray machines



Corporate executives: Dr. Karl-Rudolf Rupprecht, Member of the Executive Board Operations Lufthansa Cargo, and Karl Garnadt, CEO and Chairman of Lufthansa Cargo.

The smart gates adjoin this area

These are installations which, on the one hand, identify the physical characteristics of the packages (length, width, height, stacking capability), with a view to the greatest possible ULD capacity utilization, and on the other feature integrated x-ray machines, which enable every single package to be screened, thereby enormously improving the quality of air cargo security processes. Behind the smart gates there are working stations for breaking down incoming ULDs, as well as smaller functional areas for securing and buffering small packages.

In the western section of the building, above the ramp for loading and unloading the ULD trucks, there is a separate “Cool” area. In future this is where, integrated in the entire hub, actively and passively cooled shipments will be buffered and traded. The work preparation area adjoins in the eastern section of the building above the belly hall. Here, the empty ULDs are inspected and cleaned, loading devices such as nets and belts are prepared for use, and reusable materials such as foils are recycled.

The southern end of the building hou-

ses the ULD stacker. This extends over five floors, is around 440 meters long and, measured from the upper edge of the Dolly lane around 30 meters high, and forms “noise barrier”, as it were, between the apron and the actual Lufthansa Cargo operations area. This ULD buffer replaces the approx. 100,000 m² of open space needed today and with its automated link to the production processes in the building, plays a major role in reducing the level of on-site traffic.



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