

# Standard 3 - Hold Baggage Screening

## Application

Compliance with Standard 3 CT technology within baggage screening isn't just about replacing existing machines, it requires review of processes and procedures which underpin performance and throughput.

Daifuku Airport Technologies has over 420 installations of Standard 3 machines worldwide and has gained a vast amount of expertise, knowledge and experience from integrating systems into all types of environments.

Daifuku's team of Standard 3 process engineers, system designers, simulation experts and BIM modelling professionals, come together to deliver a bespoke solution tailored and built around the requirements of the customer and system.

## Concepts & Design

Daifuku's dedicated Standard 3 team uses the latest technologies in AutoCad, 3D design and simulation software to build new installation models for systems upgrading to Standard 3.

The use of these technologies when combined with BIM modelling is particularly powerful in capacity constrained baggage halls, and terminals where consideration needs to be given to the additional requirements of the various Standard 3 machines in regards to size, weight, throughput and processing times.

## EDS Vendors

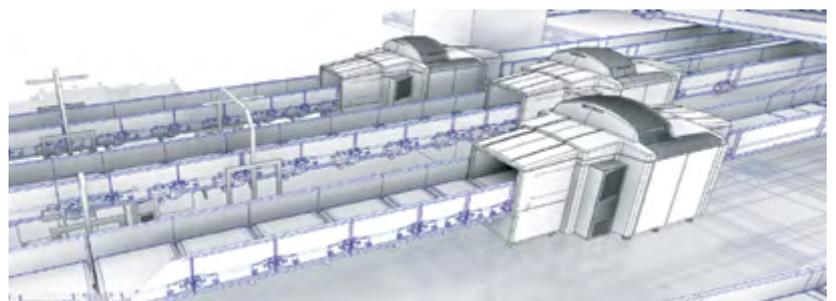
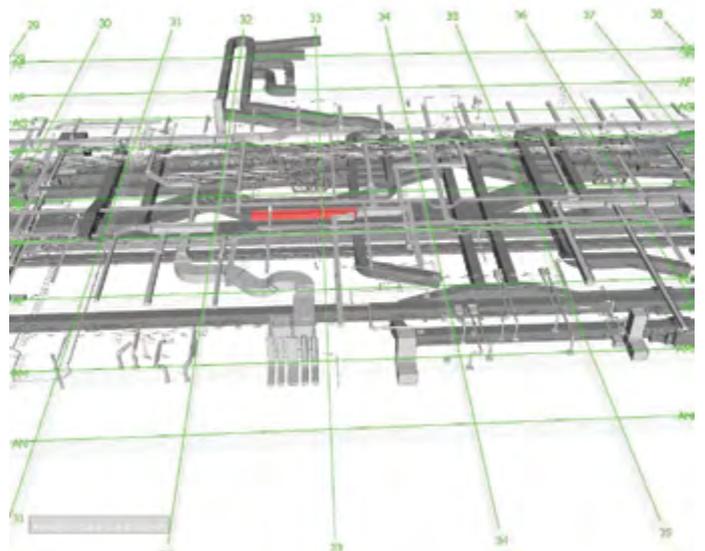
Daifuku has integrated over 400 various EDS machines into existing and new installations. We are independent of any supplier but we maintain close relationships with many vendors, enabling our experiences in integration and operations & maintenance to be shared back into machine development.

Using the various simulation tools available, we are able to build and virtually demonstrate baggage system design and machine capabilities. These tools provide the customer with an up-front view of how the system will look along with a real expectation of performance, throughput and in-system time.

## BIM

The use of BIM modelling ensures that designs are "fit for purpose" and are able to be built within the building constraints. This is particularly important within existing baggage and building environments. The use of clash detection against building services, steelwork and fabrication enables the baggage design to be modified iteratively ensuring minimal on site "surprises".

We work closely with architects and design integrators to ensure that the BIM models and clash detections highlight all major problems and obstructions thus reducing unknown costs and providing higher levels of cost certainty and assurance.



## Simulation

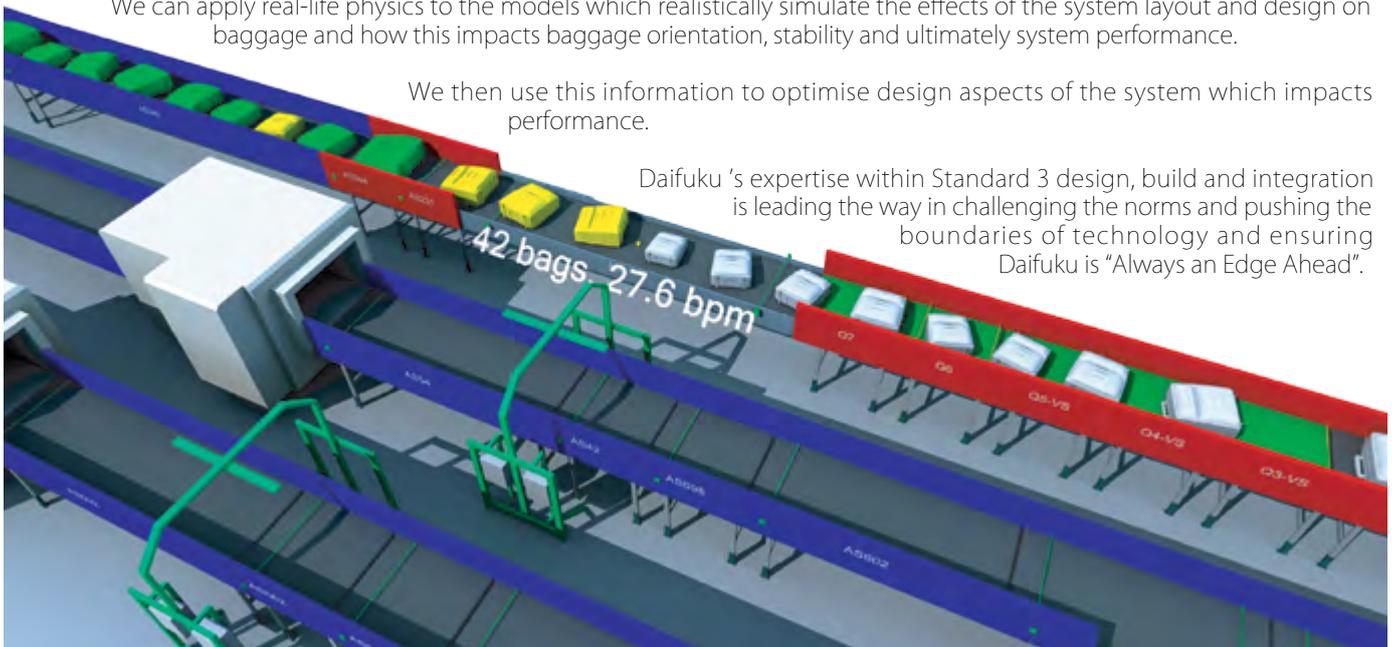
Daifuku uses advanced simulation models to build, test and performance stress the integrity and validity of it's designs.

Simulation models can be built at the very early stages of the Standard 3 process independent of any machine selection. Using these software simulation tools we are able to run system throughput and assess design criteria as well as the physical effects of baggage on the system.

We can apply real-life physics to the models which realistically simulate the effects of the system layout and design on baggage and how this impacts baggage orientation, stability and ultimately system performance.

We then use this information to optimise design aspects of the system which impacts performance.

Daifuku's expertise within Standard 3 design, build and integration is leading the way in challenging the norms and pushing the boundaries of technology and ensuring Daifuku is "Always an Edge Ahead".



## Emulation

Once the Standard 3 system has been designed, simulated and approved by the customer, Daifuku is able to use Emulation tools and software to build the actual PLC code in the test lab using the above 3D models and simulations.

The PLC code is written and built around the models virtually and full end-to-end in-house testing is completed with the customer present in our test labs.

Any faults and issues can be easily rectified and retested in the lab. SAC and SCADA applications are also tested and integrated to provide a fully functional control system prior to any site installation and commissioning.

This dramatically reduces on-site commissioning time and costs, providing the customer a high level of assurance when going live in operational environments.

