

Frankfurt Airport

Optimising Security for Fraport's Terminal 3

How close collaboration helped turn ambitious performance requirements into an operational reality.

Picture credits: Fraport AG

The Customer:

Frankfurt Airport is one of Europe's leading international aviation hubs. Operated by Fraport, it connects Germany with destinations worldwide and plays a central role in European passenger and cargo transport.

Terminal 3 is the largest infrastructure project in Fraport's history and one of Europe's largest privately funded infrastructure projects. Built over a decade at an investment of approximately €4 billion, it represents a defining step in the airport's long-term growth. The terminal has capacity for up to 19 million passengers annually, with the potential to expand to 25 million.

The Challenge:

A terminal of this scale required a security checkpoint that could match its ambition from the first day of operation. Screening performance, passenger flow and operational resilience were fundamental to how one of Europe's most advanced airport facilities would function.

Fraport needed to maintain effective screening while supporting high passenger volumes and a simpler, more predictable journey. The scanners, automated lanes and control systems also had to integrate technically, operationally and visually into the new terminal.

The key requirements were to:

- Provide capacity for Terminal 3's projected passenger volumes.
- Maintain stable, high throughput during peak periods.
- Reduce delays associated with passenger preparation and tray handling.
- Combine reliable automation with efficient operator workflows.
- Support future networked and remote screening operations.
- Integrate seamlessly with the architecture and visual identity of the terminal.

Installation began in September 2025. The complete checkpoint environment had to be installed, integrated, commissioned and tested in time for Terminal 3 to enter regular operation in April 2026.

The Solution:

Following a competitive tender and detailed evaluation, Fraport selected Smiths Detection. Under a framework agreement, the initial deployment comprised 19 HI-SCAN 6040 CTiX Model S cabin baggage screening systems integrated with Daifuku automated tray return lanes.

Using Computed Tomography and automatic explosives detection, the HI-SCAN 6040 CTiX Model S produces high-resolution 3D images to support fast, confident assessment. Its ECAC EDS CB C3 approval enables passengers to keep electronic devices and liquids of up to two litres inside cabin baggage, simplifying preparation, reducing tray demand and supporting more consistent flow.

The automated lanes return empty trays directly to the divestment area, reducing manual handling. At 20 cm narrower and approximately 350 kilograms lighter than the original model, the Model S provided greater flexibility for integration with the lanes and surrounding infrastructure.

Together, the technologies create a coordinated checkpoint built around Fraport's priorities: effective screening, operational efficiency, passenger flow and long-term adaptability.

Delivering an integrated checkpoint solution

The project went considerably further than equipment installation. Smiths Detection worked with Fraport and the automated lane supplier to align interfaces, refine the lane configuration and create one coherent screening environment. The equipment's colour and design were customised to complement Terminal 3's architecture, ensuring the checkpoint was fully integrated into the passenger environment. The systems also support networked and remote screening, providing a foundation for future operational and regulatory change. They are also APIDS-ready, giving Fraport the flexibility to introduce automated prohibited item detection capabilities in the future.

The Outcome:

The 19 systems were installed and commissioned in time for Terminal 3 to begin operations in April 2026. Testing demonstrated sustained throughput of more than 240 passengers per hour, exceeding the level predicted during simulation and validating the detailed work undertaken by the joint project team.

The resulting checkpoint provides the required capacity and resilience. Automated tray handling reduces manual intervention, while the refined lane configuration and operating model support stable processing during busy periods.

For passengers, the ability to keep electronic devices and liquids of up to two litres inside cabin baggage simplifies preparation and reduces stress. For operators, high-quality 3D images and automatic explosives detection support effective and confident decision-making.

The outcome is more than the deployment of 19 CT systems. It is a checkpoint environment developed through

close collaboration, rigorous testing and detailed process optimisation, and integrated into Fraport's most significant infrastructure project. Fraport's satisfaction with the operational performance and dedicated on-site support provides a strong foundation for continued collaboration.



"The opening of Terminal 3 is a major milestone for European aviation infrastructure, and we are very happy to have selected Smiths Detection as our trusted partner in this endeavour. The HI-SCAN 6040 CTiX Model S has delivered a very high level of operational performance to our complete satisfaction and the dedicated on-site support during installation has been impeccable. We look forward to continuing our collaboration."

Jan Müller
Head of Aviation Security Technology, Frankfurt Airport

Why Smiths Detection?

Fraport's decision followed a rigorous tender in which the proposed checkpoint demonstrated its ability to meet the airport's security, throughput and resilience requirements. The selection reflected proven performance as well as Smiths Detection's ability to manage the technical and operational complexity of a landmark terminal project.

Key differentiators included:

- Operational performance and technical expertise.
- The ability to integrate CT screening with third-party automated lanes and control systems.
- Specialist project, engineering and on-site service expertise throughout implementation.
- A collaborative, evidence-led approach to process optimisation.
- Experience delivering complex checkpoint projects at major airports.
- Support for networked and remote screening architectures.

The project also builds on a relationship spanning more than 35 years, during which Smiths Detection has installed more than 300 X-ray screening systems across Frankfurt Airport. This long-standing understanding of Fraport's operational environment provided continuity, while the competitive evaluation ensured that the chosen solution met Terminal 3's specific demands.