

Buyer's Guide

X-Ray Bag Scanning Solutions

The Importance of X-Ray Bag Scanners as Part of a Layered Security Solution

Many security directors understand the value of a layered approach to physical security. For venues such as schools, hospitals, stadiums and amusement parks, this could entail a combination of walk-through concealed weapons detection systems and X-ray bag scanners. This approach can be particularly beneficial in medium to high clutter environments where patrons carry bags.

Venues can complement walk-through screening with X-ray scanning that focuses on detecting concealed weapons in bags. This has the dual benefits of helping allow the walk-through screening systems to operate at a higher level of sensitivity (which may enable the system to detect smaller weapons) while keeping false alarm rates low, all without slowing down the flow of entry.

Potential Challenges with Traditional X-Ray Screening

Despite their advantages, traditional X-ray scanners may come with trade-offs, particularly regarding efficiency and operational complexity.

Two of the primary potential drawbacks of traditional X-ray systems are the need for operators to examine X-ray images to detect potential threats and the impact this has on the

ingress process. Examining and interpreting X-ray images can take time, which may slow down the flow of people through the entry points. Proper training is essential to ensure operators can accurately interpret the images, but this can require budget and planning, particularly for venues with several entrances and large security teams.

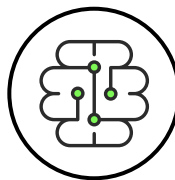
Key Features to Look For in Modern X-Ray Bag Scanners

To help address these challenges, it's important to select an X-ray system designed with efficiency and ease of use in mind.



Autonomous Threat Detection

Ideally, the system should be capable of identifying potential threats autonomously, which means it eliminates the reliance on operator interpretation of X-ray images. This minimizes the need for extensive training by simplifying the operator's role. The system should aim to alert operators clearly and unambiguously when a threat is detected, allowing them to focus on secondary searches, as needed, without disrupting the entry flow.



Utilizes AI/Machine Learning to Improve Speed and Accuracy

Another potential drawback of traditional x-ray scanning solutions is operator fatigue associated with constantly examining the x-ray images.

This may lead to missed threats. Look for an X-ray bag scanner that uses AI and/or machine learning (ML) with the goal to accurately detect potential threats, including guns, knives, and IEDs. The AI/ML software is designed to operate consistently and can make detection decisions in milliseconds.

While some solutions allow AI software to be layered onto traditional systems, this approach may require additional operator training. While the AI can assist in detecting potential threats, for this type of system in which AI is in “assist mode” only, the operator remains responsible for deciding whether to stop the machine, instead of the belt stopping automatically.

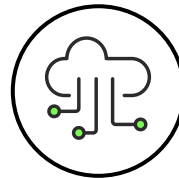
In addition, the system should operate with a **low false alarm rate (FAR)** or referred to as nuisance alarm rate, so that there is less burden on security staff to perform unnecessary secondary searches. This also helps keep the flow of traffic moving smoothly.



Staff-Friendly Design

Easy to Operate: Alerts should be intuitive, with an optional visual image (e.g. via a connected tablet) that helps pinpoint which bag requires attention. The system should provide enough clarity to assist operators without necessitating advanced training. One approach is to provide a red light / green light output with the ability for the conveyor belt to stop automatically when a potential threat is detected. An operator only needs to jump in to perform a secondary search in this case.

Easy to Deploy: The X-ray bag scanner should be easy to move around and set up. This includes “plug and play” operation where it only needs to be plugged into a standard wall outlet to work. The system should be on casters to make moving it fairly easy from one location to another, too.

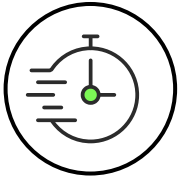


Part of a Connected Security Solution

Ideally, the X-ray bag scanning technology is part of a larger solution where each component adds a different layer of security. One example of this would be an X-ray bag scanning solution that is layered with walk-through concealed weapons detection systems set up at the building or venue entrances.

Directing the flow of bags through an X-ray bag scanner can help enable the walk-through system to operate at a higher level of sensitivity while keeping the false alarm rate low. Operating the walk-through system at a higher sensitivity level may result in higher overall detection for the venue.

The ability to maintain this balance of effectively detecting potential threats while ignoring harmless personal items becomes essential when considering the varying needs of different venues and how types of personal items can vary. For example, stadiums with no-bag policies have different security needs compared to office buildings or schools, where visitors often carry bags with large electronics. Layering concealed weapons detection solutions allows adaptability to these diverse environments, focusing on both accuracy and operational efficiency.



High Throughput to Maximize Visitor Flow

Traditional X-ray systems may slow down entry points because of the time it takes for a human operator to inspect the X-ray images and detect potential threats and the speed in which the conveyor belt moves bags into the system. The system should support X-ray screening that keeps up with people walking through the walk-through concealed weapons detection system. This means people can enter a building at a regular pace, drop their bags on the scanner, grab their bag and keep moving. The two technologies, X-ray bag scanner and walk-through concealed weapons detection, should complement each other to maintain a high level of security without disrupting the visitor experience.

Evolv Safer Experience System™

Evolv provides advanced, AI-driven physical security solutions that are designed to help make places safer for people to live, work, learn and play. Unlike standalone solutions, the Evolv Safer Experience System™ combines concealed weapons detection (Evolv Express® and Evolv eXpedite™) and integrated analytics (Evolv Insights™) into a unified security infrastructure.

Autonomous X-Ray Screening with Evolv Express

Evolv eXpedite is designed to autonomously scan bags to detect potential threats. The system uses advanced AI and high-speed X ray imaging technology to distinguish many potential threats from many everyday items.



Evolv eXpedite works with Evolv Express, a walk-through concealed weapons detection solution, to provide a layered approach to security for concealed weapons detection in high clutter bag environments. Using eXpedite with Express aims to allow the combined checkpoint to operate at heightened sensitivity while also helping optimize the visitor experience.

Contact Evolv to learn more
[evolv.com](https://www.evolv.com)