

SCREENING

FEATURE

With a large volume of air cargo still travelling unscreened, **Stephen Phipson** calls for internationally harmonised security standards for air cargo screening

STANDARDS

The discovery of explosives from Yemen hidden in ink cartridges on cargo planes has refocused attention on air cargo screening. Since that foiled bomb plot in late October 2010, governments and aviation experts continue to struggle to come up with ways to strengthen cargo security without paralysing a business which is essential to global trade. Smiths Detection favours a standardised international approach that requires that all cargo carried by passenger planes is checked for explosives.

A look at the official figures emphasises the need for a change in policies. According to the International Air Transport Association, 80 million metric tons of

goods travel by air freight each year, with air cargo representing about 35 percent of the value of global trade. According to the US Transportation Security Administration (TSA), approximately 50,000 tons of cargo is flown within the US alone every day, 25 per cent of which is carried on passenger airlines. Approximately 60 per cent of all air cargo going into the US is on passenger planes. The remaining 40 per cent is on cargo airplanes.

Air cargo is very complex by nature. Shipment configurations range from loose, to bulk, containerised or palletised, can come from countless sources and comprise a multitude of goods, including

Bulk cargo is screened by Lufthansa Cargo at JFK airport in New York



fresh produce, frozen meat, medical supplies and electronic devices. All of these could be potential elements in terrorist plots. A further crucial aspect is that the cargo industry is very fragmented, consisting of all-cargo airlines, door-to-door shippers and shipping companies that usually rent cargo space on passenger planes. The operative screening scenario still is very heterogeneous, therefore. It goes without saying that there is no one single solution for all applications due to the aforesaid variety of air cargo materials and handling scenarios. A layered approach using multiple techniques and solutions allows customers to select a set of technologies that best meet their individual needs, however. At best, this should be grounded on an internationally standardised security setting.

While the European Union lays down how to implement security controls for cargo and mail in its specific regulations, the US has a different legislative mandate. Other nations also follow their own specific rules. Air cargo is therefore being carried across borders without a common regulation that makes sense for all. The commonly employed practice of merely checking that freight matches its inventory, or measures such as the "known shipper" programme, are not sufficient. Stricter, standardised regulations on screening air freight for explosives should be applied internationally to close loopholes that make the system vulnerable to terrorist attacks. There is abundant knowledge provided by security system

manufacturers on how to plan, design and equip efficient air cargo screening checkpoints.

Companies like Smiths Detection can provide experience, knowledge and an expansive air cargo screening equipment product portfolio to the global air cargo industry for the detection and identification of explosives in cargo shipments. Some offer certified solutions that are small enough for checked bags (and small cargo packages) as well as equipment that is large enough to accommodate entire pallets of cargo and systems that are desktop or handheld. In order to reliably check air cargo shipments, air carriers and cargo handlers can, for example, apply advanced technology ("AT") X-ray and explosive trace detection ("ETD") systems to screen cargo as part of the overall cargo security "layered" solution.

AT X-ray equipment is multi-view X-ray technology developed to automatically detect explosives through the evaluation of effective atomic number (Zeff) and density calculations. Such systems are available in stand-alone configuration for smaller volumes or break-bulk. Broad screening needs to include X-ray automatic detection or assisted detection, coupled with image review and manifest verification using approved systems. Package handling systems for larger packages can facilitate high-speed automatic X-ray explosive detection, with throughput capabilities as high as 1,800 pieces per hour – a tremendous advantage in time-critical sectors such as air transportation. Thousands of these AT systems are



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deployed globally and they help to ensure the safety of checked baggage in many countries throughout the world; they can assure the same results for air cargo break bulk shipments. Finally, the US is also using AT for the latest passenger baggage requirements and, to some extent, for air cargo screening.

Trace detection and X-ray screening equipment can also help detect explosive devices hidden in air cargo shipments. Ion Mobility Spectrometry (IMS) detectors are ideally suited for detecting the pentaerythritol tetranitrate (PETN) compound that was identified when the Yemen threat scheme was discovered. The latest desktop and hand-held explosives detectors now have PETN identified and programmed for detection. High-speed systems are especially suited to detecting explosives in time-sensitive air cargo applications. PETN is included a standard in the calibration curves of Smiths Detection X-ray devices and can therefore initially be detected by its automatic screening equipment. Further unresolved issues should move to explosive trace detection and/or other substance evaluation techniques. Threats that cannot be resolved at that stage may need to be opened with the owner, identified for review or, if all fails, must be destroyed.

Irrespective of the layered solution applied, air cargo security programmes need to be threat-based and risk managed. Carriers and forwarders must be taken seriously and assured that security measures are both practical and do achieve results. Regardless of whether air cargo is screened before it arrives at an airport or before it is loaded onto a plane with available space, cargo screening equipment should be applied as early as possible in the process and for the smallest package elements. Governments, airports, air carriers and freight forwarders around the world should utilise AT X-ray and explosive trace detection solutions, backed by appropriate service and training support, for air cargo security.

While no one single device can give a 100 per cent guarantee of detection of an unknown threat, a layered approach that involves a combination of intelligence sharing, detailed security protocols, specific search techniques where necessary, and the use of advanced technology such as X-ray



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The latest screening technology is essential to protect the airline industry

inspection and explosives trace detection is the key to uncovering hidden threats in due time. With each company having its own concept of operations, there should be a phased movement towards this level of security to avoid leaving any loopholes that could be exploited by terrorists.

The travelling public should be able to move across the globe with peace of mind knowing that the cargo their aircraft carries is just as thoroughly scanned as they themselves and their baggage were. The latest screening solutions can and do help air cargo carriers and freight forwarders to scan and detect threats in packages that end up on passenger planes.

Currently, there is no harmonised approach to air cargo screening, yet there needs to be one to provide a close security chain without interruption globally, to ensure safer skies.

Stephen Phipson CBE has been President of Smiths Detection since 1 August 2004, and has held several senior roles in the electronics and defence industries both in Europe and the US. He was awarded the CBE (Commander of the Order of the British Empire) for services to the security industry in June 2010.