# FLY-BAG 2

# Advanced Technologies for Bomb-Proof Cargo Containers and Blast Containment Units for the Retrofitting of Passenger Airplanes

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COOPERATION

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## THE REQUIREMENT

**Aviation is under constant threat** from devices, employed by individuals with detrimental intentions.

Terrorists have proven that they might be able to circumvent security scans both by carrying explosive devices on board themselves or by sending parcel bombs via mail, or else: hidden in a luggage.

**Currently available security scans are essential, but** – unfortunately - **cannot guarantee a 100% detection rate**, as past events have proven.

This is why complementary countermeasures are required to protect aircrafts, passengers and crew - in case an explosive device is smuggled on board.

At present, quite rightly, a lot of effort is focused on prevention. However, this alone cannot secure full safety from an explosive device getting on board, as instances testify this.
Our project is aiming at remedy this.

We are developing a back-up protection device which is the solution, in case the pre-emptive security fails on the aircraft, already in mid-air.

The only way to overcome current limitations of existing scanning methods is, by providing complementary protective structures for the cargo hold and passenger cabin, both of which are able to attenuate the effects of an in-flight explosion and secure a much increased survival of the aircraft and consequently, passengers and crew.


## RESEARCH

**FLY-BAG2** is a follow-up of the successful FP7 research project: FLY-BAG (Grant Agreement No. ACP7-GA-2008-213577) which developed and successfully tested a textile-based luggage container for the hold of narrow-body aircrafts.
The aim of **FLY-BAG2** is to utilize all the knowledge-which we have achieved in the previous project – and build upon this. In our present project we are developing new devices for both the cabin and cargo environment.
This will be then verified by an experimental validation of the new concepts, including **full scale tests on disused aircrafts**.
**FLY-BAG2** solutions aim at achieving the highest degree of protection of aircrafts, passengers and crew by counteracting threats, posed by explosive devices smuggled inside the passenger cabin or bombs concealed inside Unit Load Devices (ULDs) **thanks to flexible and lightweight textile-based materials, lightweight composites and high resistant zip closures**.

## OUR NEW PRODUCTS

Building on the innovative technologies, developed within the previous project, **FLY-BAG2** is developing two entirely new classes of bomb-proof devices, namely:

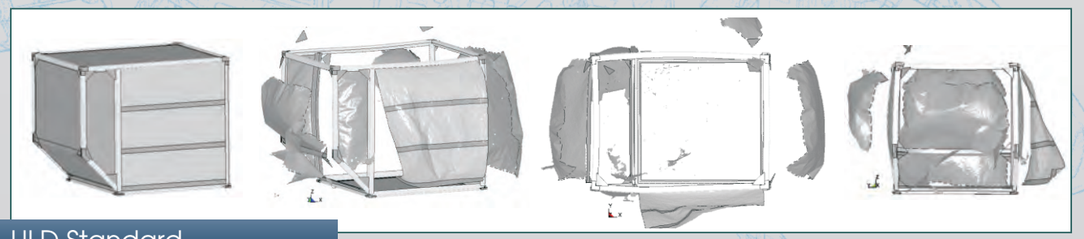
- a cabin device - meeting the Least Risk Bomb Location (LRBL) requirements;
- blast-resistant Unit Load Devices (ULDs) - for cargo holds.

**The cabin solution:** our concept is focused on the development of a compact blast resistant flexible and foldable container, based on a multilayered high-performance, textile structure, which will be placed in the passenger part of all aircrafts. These will be able to resist any blast, i.e. securing any suspicious bags, found in the passenger part, during mid-flight.

**For the cargo area** our method is to design and engineer a multilayer textile cover, capable of resisting a stronger blast, in order to provide the necessary protection needed for a safe flight, again while flying. This will be a robust but lightweight composite device, with a strengthened flooring, to accommodate shipped goods and/or suitcases. This device will be used in either cargo-airplanes or commercial aircrafts, with the passengers' luggage in the cargo area of the plane, as part of the normal, and already widely used ULD devices.

For both the cabin and cargo device, the closure of the bag is achieved by using a high resistance, specially designed zip.
We will be validating our concept via several ways: initial material testing, computer modeling, and extensive, full scale blast experimenting.

All these procedures will enable us to develop a reliable product for each option, leading to market penetration and ensuring a considerable impact on the ever increasing and important safety in the ever more extensively used aviation sector.



ULD Standard

FLY-BAG 2 - ULD Unit