

# BALBAR

Mobile protective  
and ballistic barrier



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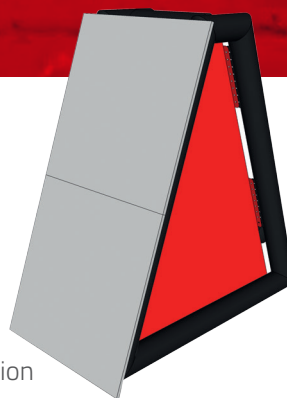
# BALBAR

## Mobile protective and ballistic barrier

BALBAR is a mobile multi-stage protection system enabling protection of IRS units in various risk situations.

### Explosion protection

- ▲ Pressure and shock waves
- ▲ Passage of any flames and heat waves
- ▲ Impact of a flying pressure bottle in case of explosion
- ▲ Fragmentation from exploding ammunition or improvised explosive device (IED)

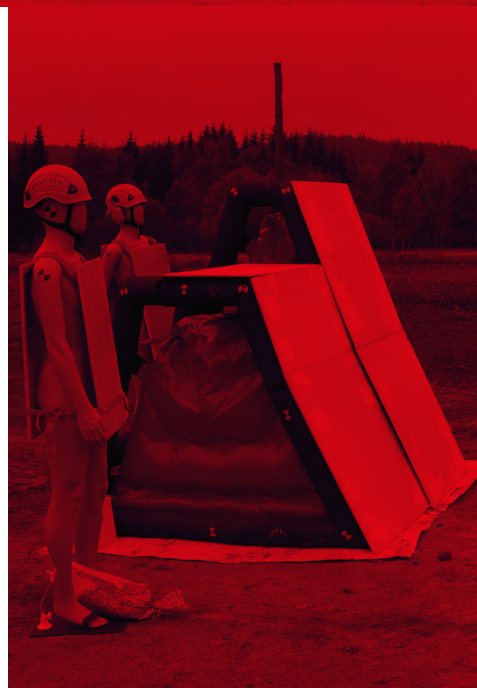


### Small Arms Shooting Protection

- ▲ Stopping projectiles from short handguns using composite GFRP boards
- ▲ Stopping projectiles from long handguns using combination of composite GFRP plate and water bag

### Basic advantages

- ▲ Simple transport, easy handling, compact dimensions
- ▲ Fast activation of the barrier system
- ▲ Possibility of use in enclosed spaces and higher floors of buildings
- ▲ possibility of connecting a greater number of barrier modules while preserving protection parameters
- ▲ Compatibility with IRS units (tanks, hoses, air bottles)
- ▲ Possibility of remote installation using ropes or a pyrotechnic robot





## Structural design and possible use of BALBAR

The basic BALBAR modular solution consists of three multipurpose elements:

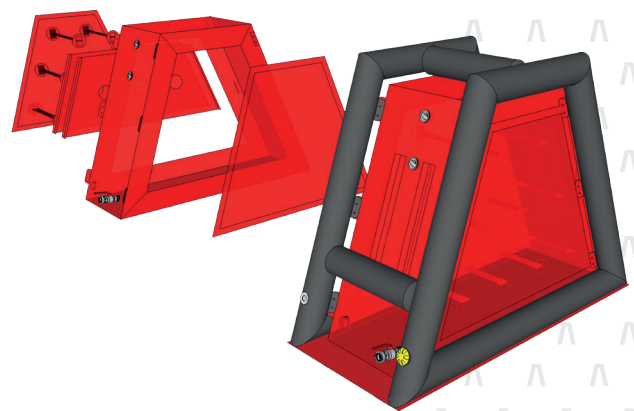
- 1 Composite GFRP (Glass Fiber Reinforced Polymer) boards with ballistic resistance
- 2 Pneumatic supporting structure
- 3 Water bag



### Composite boards with ballistic resistance

Ballistic resistant composite GFRP (Glass Fiber Reinforced Polymer) boards are molded plates based on polymer resin and glass reinforcement. Their degree of ballistic resistance depends, as with other materials, on their thickness.

Ballistic-resistant GFRP boards designed for use in the BALBAR barrier system provide protection from pistol projectiles and fragments of hand, mortar and artillery shells of small and medium caliber and from shrapnel effects of improvised explosive systems.



### Pneumatic support structure

The basic structure of the BALBAR system is using for fix composite boards and water bag. The supporting structure consists of air cylinders, which can be inflated by means currently used by the Fire Rescue Service

**The BALBAR assembly, consisting of a pneumatic support structure and a composite board, provides a basic degree of ballistic protection.**

### Water bag (red material)

Water bag in the assembly BALBAR fulfills the role of loads and secondary ballistic protection. In an explosion, water loads absorb the effects of shock or pressure waves. In case a composite board is shot through by projectile or fragment, the water column of the bag is able to stop these parts.



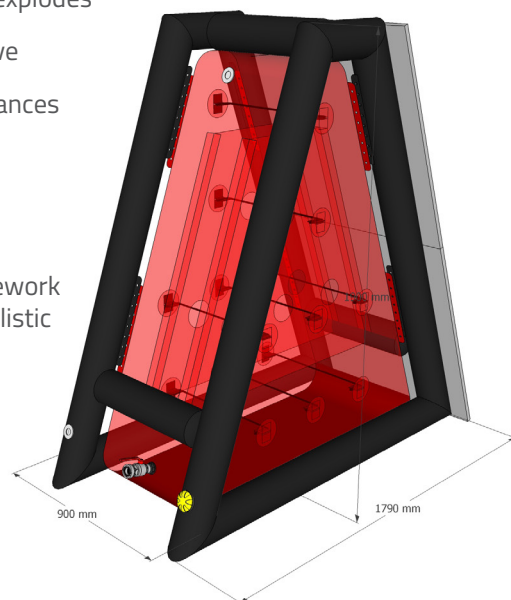
## The presented BALBAR system has undergone a number of tests focused mainly on:

- ▲ Ballistic resistance when using various ammunition for short and long handguns
- ▲ Ballistic resistance to fragmentation resulting from the explosion of hand and mortar grenades
- ▲ Ballistic resistance to improvised explosive systems
- ▲ Resistance to shock wave and flame when the gas bottle suddenly explodes
- ▲ Resistance to shock wave and flame caused by explosion of explosive
- ▲ Resistance to flame during the explosion of highly flammable substances

**Testing was carried out in cooperation with various units of the Fire Rescue Service of the Czech Republic, the Czech Police and the Czech Army**

The mobile protective and ballistic barrier is being created in the framework of the FV10506 project - Research and development of the mobile ballistic barrier formed by the composite board and water filling - the project completion date 9/2019.

### PROJECT PARTNERS:



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