

## "Iron wall" - Passive protection against Medium IEDs



# Advanced Armor Solutions

For Multi-Threat IED-EFP & SFF protection

Passive ballistic structures that can defeat two types of defined IEDs - Explosive Flyer Plate (EFP) and Steel balls charge Focus Fragments (SFF), two deadly threats that proliferated in recent asymmetric combat engagements.

The new armor, designated 'Iron Wall' comes in passive, ballistic protection modules combining composite materials and metals. The new armor modules were successfully tested with two types of vehicle armor: thin wall armor made of RHA steel, representing common armored vehicles and thicker Aluminum walls, representing M-113 APCs. The 'Iron Wall' has a specific weight of up to 45psf (220 kg/m<sup>2</sup>), depending of the required level of protection. It effectively protects against 14.5mm AP rounds and artillery fragments, meeting STANAG 4569 Level 4.

Iron Wall is currently at TRL-8, having been proven to work in its final form and under expected conditions. The new armor has completed operational trials on IMI modified Urban-Fighter M-113 APC, soon to enter low rate initial production.



## "Breakwater" Advanced Reactive Protection against IED - EFP & RPG7

Based on passive and reactive armor principles, Breakwater has been tested against large EFPs manufactured with copper liners, as well as the RPG-7 High Explosive Anti-Tank (HEAT) warheads. In addition, Breakwater armor provides high level of protection against small arms, conforming to STANAG 4569 Level 4. Analysis shows that it can also defeat the RKG-3 shaped-charge grenade.

The complete armor solution is comprised in a proprietary configuration of metals, composite materials and explosives, available at a specific weight, around 88psf (430 kg/m<sup>2</sup>).

Following extensive testing of the armor prototype, the Breakwater armor repeatedly demonstrated its ability to defeat surrogate IED-EFP, used as an applique armor protecting base armor representing a Mine Resistant Ambush Protected (MRAP) vehicle.

Each module can be shaped in height, width, geometry and placement, to best fit the vehicle's envelope. Breakwater is optimized for application to vehicle such as MRAP. Its shape has been chosen as the ideal balance between performance against EFPs and RPGs.

While reactive armor are always a cause of concern, regarding the risk of injuring nearby dismounted troops, or causing collateral damage to non-combatants, IMI studies and actual "arena tests" show that the secondary effect caused by the add-on reactive armor modules responding to an imminent threat, is negligible when compared to the blast and fragment resulting from the ammunition itself, while impacting the vehicle.

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