

Overview

Our *Blast Resistant Ballistic Panels* are custom manufactured from multiple layers of Kevlar® and sewn within a fire retardant, water repellent nylon cover to provide a longlasting durable protective product.

These light weight Ballistic Panels are designed to resist the ballistic impact resulting from a variety of explosive ordnance including mortars, rockets and a variety of other propelled materiel.

Our system is available for 2-door, 4-door and ambulance HMMWV models and there are over 40 systems currently deployed in field operations in Kuwait and Iraq. Similar system for civilian vehicles is currently under development.

The kits are available in a variety of protection levels to match end user operational requirements. Its flexible design allows the panels to be removed/added depending on the type of vehicle used or the environment in which the vehicle is to be deployed. The panels can be easily repaired if they are damaged by fragmentation by the use of 'add-on' patches applied using Velcro attachments.

Fragmentation and Blast Protection Specifications

The Ballistic Panels are manufactured in accordance with the standards of the NIJ and U.S. Department of Justice is designed with the following V50 fragmentation specifications:

2 grain	2,530 fps (feet per second)
4 grain	2,000 fps
16 grain	1,812 fps
64 grain	1,556 fps
17 grain	1,702 fps

Applicable definitions:

Grain:

The smallest unit of British and US weight measurement system. One pound equals 7,000 grains.

V50:

A standard statistical ballistic test. V50 testing identifies the average velocity at which a bullet or a fragment penetrates the protective armor equipment in 50% of the test versus non-penetration in the remaining 50% of the material tested.

Design

The HEODS - Blast Resistant Ballistic Panel System for the 4-door HMMWV is comprised of 48 pieces of Level IIIA panels that cover the entire area of the vehicle. We designed the system with a special emphasis on the doors, driver and front passenger leg areas. The front wheel well of the vehicle is particularly vulnerable to damage from explosive devices. In this location, as in all passenger areas, we deploy a double layer of ballistic protection.

The engine/transmission area is protected with a single layer of material. A layer of material separates the cargo and the passenger areas which operates as a "curtain" and can be folded up or down as required.



Mounting

The ballistic panels are attached to the vehicle using mounting straps. Our strapping system is designed for use in any model. For vehicles with tubular roof supports, the straps mount directly around tubes. For vehicles with solid roofs and no tubular supports, the straps are permanently attached (using a drill/bolts). (See drawing right)



Doors

The doors of the vehicle require custom fit protective panels permanently attached to the door frame. Our design permits the vehicle occupants to use the vehicle side mirrors with minimal interference. An added "pocket" is incorporated into the protective panels just below the window area, allowing for the insertion of the SAPI Armor Piercing Level III+ plate. This plate increases the level of protection for both the driver and passenger. (See figures below)



Figure 1: Door with Window Closed



Figure 2: Door with Window Open



Figure 3: SAPI Plate Pocket

HEODS - Blast Resistant Ballistic Panels – Select Panels

