

CaraSTOP™

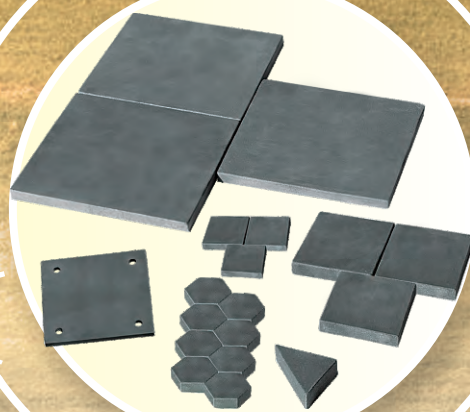
Light Weight Ceramic Composites

CaraSTOP is the most advanced armor system to provide protection against deadly bullets like the Armor Piercing rounds. It offers you a choice of high performing ceramic materials used in combination with an array of materials to form composites that meet all your varied protection requirements.

Factors like protection, weight and cost govern the composite formation.

CaraSTOP- Eco: This economical range is optimal for lower-cost, higher-weight applications. Typically finds use in high powered vehicles with good payload capacities.

CaraSTOP- UL: This ultra-light range of solutions made using the extremely hard BORON CARBIDE ceramics offer higher performance benefits with lower weight add-ons. It is eminently suitable for applications where weight is of prime consideration eg. armouring of helicopters, ships, etc.

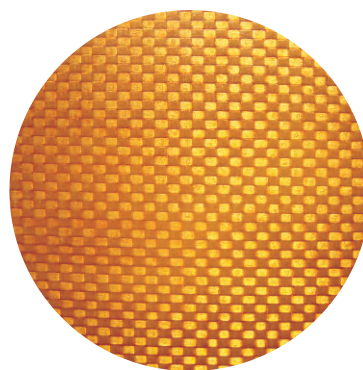


- Ball and Armour Piercing bullets
- Defeats AK47, 5.56mm, 12.7mm
- Superior performance against API threats
- Low add-on weights

Less weight can translate into increased protection area

CaraSGC

CaraSGC, the Super Glass composite (E-Glass, S2 Glass, ShieldStrand) is an amazing solution for ballistic fragmentation, blast mitigation and behind armor overmatch application, including spall liners, IED/EFP kits and add-on armor kits.



- Mitigation of behind armor effects
- 30-50% reduction in cone angle compared to metals
- Fire/ thermal resistance
- Corrosion resistance
- Fatigue resistance
- NBC resistance
- Impact resistance

It enhances structural performance and durability of ceramic, aramid or UHMWPE hybrid composite armor materials. It is an ideal material for next-generation light weight armored vehicles due to weight and cost savings while ensuring performance improvements

CaraLWS

CaraLWS is a special Light Weight Steel Composite developed to take advantage of the low cost-high availability of steel. A combination of steel with high performance materials like glass and aramids allows for a good balance between cost and weight.

It is highly effective against both bullet and blast protection and offers the

S M Carapace has a continual R&D process and is always willing to take up challenges and develop customized solutions for its customers. Choice of a host of materials is available to be used in combination to develop newer solutions.

Partners, Affiliates and Memberships:



SM Group's main subsidiaries:

SM Pulp Packaging: Pioneering the field of vacuum formed molded products

S M Armet Armored Vehicles: Delivering armored vehicles for "mobile" bullet/ blast protection

SM Carapace Armor: Providing protection solutions to those who protect us

SM Macario Technologies: Developing tactical software systems for the armed forces

SM Macario Software: Delivering software solutions and IT services globally

SM Engineers & Consultants: Providing turn-key project solutions



AN ISO 9001:2000 Group

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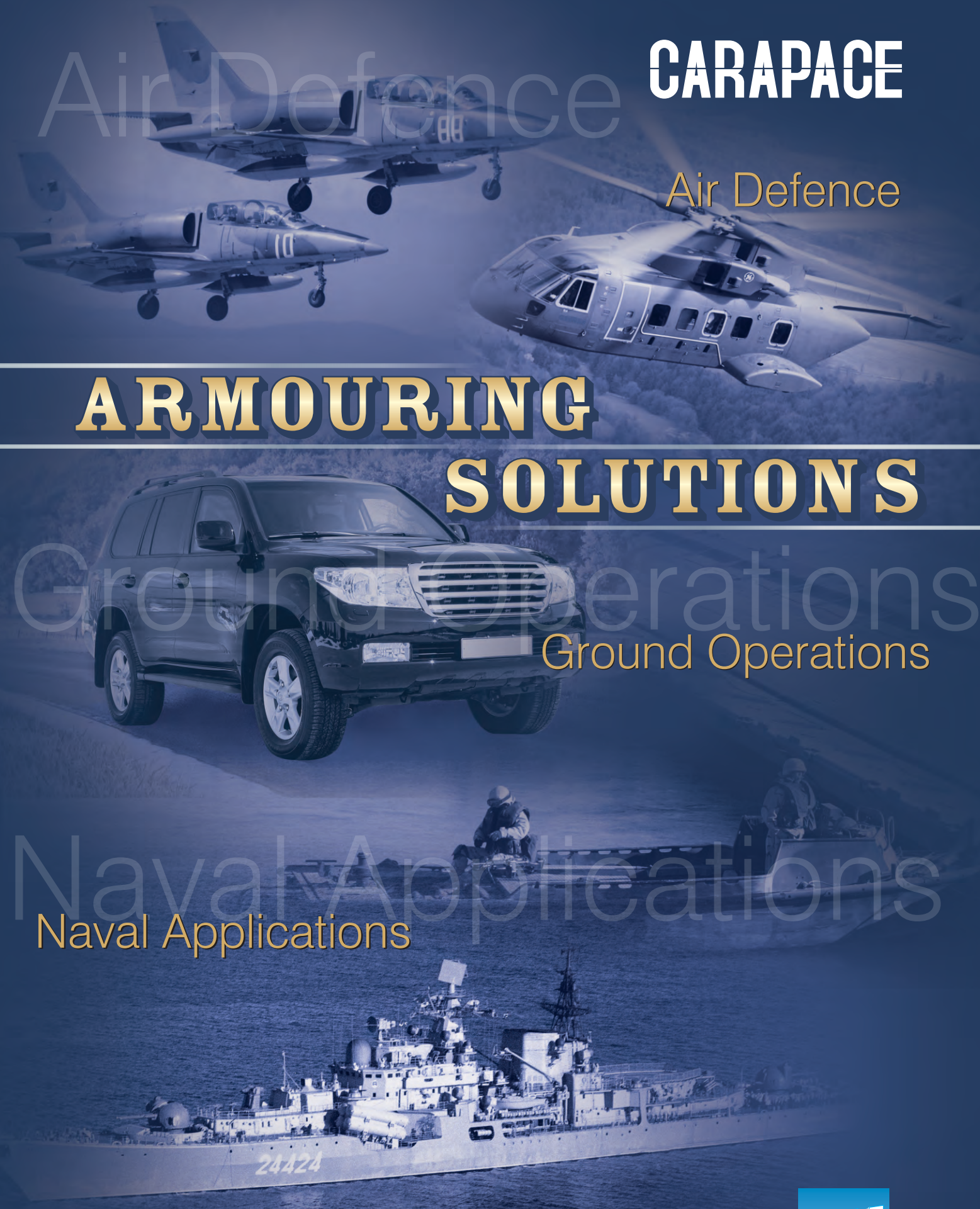
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Built-to-design: Tactical Vehicles

With the ever increasing threats like counterinsurgency and terrorism in border areas/ urban centers/ airports/industrial hubs etc., there is necessity for Light Armored Vehicles. But faced with high caliber bullets and the need to fight, it demands a vehicle which has been built-to-design for such purpose.

S M Carapace in JV with Armet Armored Vehicles, Canada offers many such tactical



Gurkha

- 155 Km/hr & payload of 2000 Kgs
- Seat crew of upto 8



Balkan

- 130 Km/hr & payload of 1100 Kgs
- Seat crew of upto 10



Sniper SOG

- 155 Km/hr & payload of 2000 Kgs
- Seat crew of upto 5

Features

- Armored to NATO STANAG 4569 level 3 (exceeds B7)
- Armor Piercing bullet protection
- Excellent blast protection with THIKA MINEPLATE™
- Protection against side load IEDs
- 360° revolving armored turret
- Snow/ Mud operability

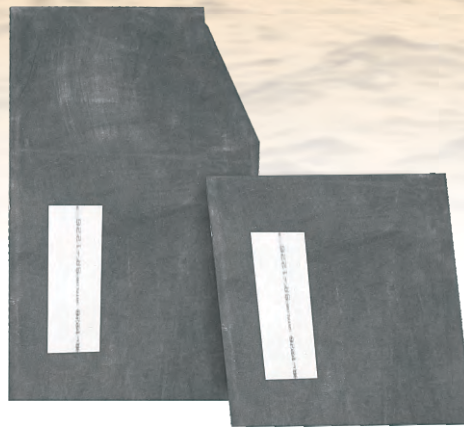


CaraPRO- Polyethylene Panels

The CaraPRO panels made from "top-of-the-line" materials like Ultra High Molecular Weight Polyethylene (UHMWPE) have been developed keeping different combat situations in mind. They are the ultimate choice when protection is required without compromising maneuverability.

Being light weight, these modular panels can be used as bolt-on armour allowing platforms to

- Size upto 1.5m x 3 m
- Light weight: <20 Kg/m²
- Effective against AK47/ 7.62 ball
- Multi-hit NIJ III protection
- Inert to water, sunlight, temperature changes, etc.
- Resistant to acids, oils etc.
- UV resistant



Protecting the occupants without compromising maneuverability



Light Weight Armour Panels & Add-on Armour Kits

SM Carapace Armor works closely with OEMs to provide customized protection solutions keeping in view the limited weight carrying capacities of various platforms yet ensuring maximum survivability. Usage of improvised explosive devices (IEDs) and high lethality bullets is almost common now and makes the task further demanding. There has to be a specific solution for every kind of "platform-threat" combination. This is to ensure that the solutions are neither "over-done" (thus affecting performance) nor are "under-done" (inadequate protection).

We use an array of advanced materials to manufacture light weight armoring solutions which are specially designed to provide maximum safety along with minimum weight.

CaraFLEX- Flexible Armour

Flexibility can be just a process requirement or a key mission specific need. CaraFLEX is the best-fit solution to all such protection requirements. Being flexible and adaptive, it allows fast and effective upgradation of protection leading to enhanced survivability.

At reasonable light weight of around 4-5 Kg/m², they offer excellent multi-hit protection against low caliber bullets.

With an inherent property to engage fragments, they offer formidable protection against fragments, making them a preferred choice for spall liners and blast protection.

It is used to create vehicle armor panels with exceptional properties. When used in combination with the vehicle floor, they perform exceptionally against blast from grenades. Their inherent ability to adapt to the floor contours is an added advantage. As spall liners, they help in reducing the angle of the spall cone.

Successful applications include spall liners and armor panels for military vehicles, police vehicles, VIP vehicles, transporters, aircraft, ships, and helicopters. They are also used as



- Extremely light weight
- Easy to cut/install.
- UV and Chemical resistant
- Flame retardant
- Good acoustic absorption
- Performance over wide range of temperatures

Fast and effective upgradation for enhanced survival



Up-armouring: Personal and Logistic Vehicles

Security and safety is paramount to all, be it VIPs, political leaders, business men, or people working in hostile environments. With the ever increasing threats, there is necessity of affording reliable protection for vehicles.

S M Carapace Armour offers a vertically integrated facility covering all aspects of Vehicle Armoring:

Armoring Solutions:

- Light Weight Armor Panels
- Composite Armor Panels
- Complete Armor Kits
- Upgradation elements like Suspension, Brakes

Complete Armored Vehicles (upto B7 level):

- SUVs: Toyota Land Cruiser/ Fortuner, Ford Expedition/ Endeavour, Chevy Suburban, Mitsubishi Pajero, Mercedes G500/ G55
- Passenger Cars: Mercedes S500, Chrysler C300

The above are available in:

- Conventional Steel Armoring
- Light weight armoring using Aramids, Polyethylene, and Composites

Services offered:

3D White Body scan
Structural designing and computer modeling



Ballistic Standards

NIJ 0108.01 - Ballistic Resistant Protective Materials

STANAG 4569 - Protection Levels for Occupants of Light Armored Vehicles