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Ballistic Protection Systems





Ballistic Protection Systems

For the modern main battle tank requirement of the Land Forces Command, ROKETSAN was assigned as sub-contractor on armor systems in the ALTAY Project in 2008. A contract between the Undersecretariat for Defence Industries and ROKETSAN was signed for the development of armor system, which consists of composite passive and reactive armors, and it will be used in ALTAY Tank. Within the scope of this contract, which was effective by 2009, ROKETSAN established the Ballistic Protection Center (BPC) and put it into service in 2010. ROKETSAN Ballistic

Protection Systems (BPS) are structured to fulfill the ballistic protection requirements of military platforms. BPC has composite and explosive reactive armor (ERA) design, development, production and testing capabilities for light and heavy armored vehicles. It also provides Elastic Layered Armor System solutions to increase protection level of armored vehicles against RPG threat and force protection solutions.

ERA (Explosive Reactive Armor)



Reactive Armor on Wheeled Armored Vehicles



Reactive Armor on Tracked Armored Vehicles



Reactive Armor on Main Battle Tanks

ROKETSAN Explosive Reactive Armor System is a hybrid armor system developed for upgrade and modernisation programs of armored vehicles. The collateral damage is reduced by the controlled fragmentation of advanced materials and the combination of reactive and passive elements. Energetic materials have been developed by ROKETSAN specifically for reactive armor applications. Ranging from heavy ERA for MBTs to self-limiting reactive armor for LAVs, different energetic material technologies are employed in the armor system.

Characteristics

- › Maximum Protection Against Anti-Tank Missiles (ATGM) and RPG Type Threats,
- › Protection Against Tandem Warheads,
- › Insensitive Ammunition Designed By Roketsan,
- › Minimum Collateral Damage,
- › Modular System – Easily Dismountable,
- › Applicable On Different Type Vehicles,
- › No Maintenance.



Composite Armor

A modern and light armor system protects land, air and naval platforms against kinetic and chemical energy (shaped charge) ammunition. ROKETSAN BPC is able to perform the production of both passive composite armor blocks from ceramic powders and reactive armor blocks from energetic materials and integrated armor modules in the same plant.

BPC Production Capabilities

- › Heavy Armor Ceramic Block Production,
- › Oxide And Non-Oxide Ceramic Armor Production Infrastructure,
- › 2400°C / 300 Ton Capacity Hot Press,
- › 1650°C Capacity Sintering Furnaces,
- › An Infrastructure For Production Of Passive

Armor Materials:

- › Advanced Ceramics: Al2O3, Sic, Hp-B4c, etc.
- › Backing Materials: Aramide, Ultmwpe, S2 Glass, etc.
- › High Hardness Ceramic Grinding, Cutting, Confinement and Armor Welding Infrastructure,
- › Insensitive Reactive Armor Explosive Material Production,
- › Armor Integration Facility,

RPG Shield



For the purpose of meeting requirements of the Turkish Armed Forces, engaged in heavy struggle against terrorism, ROKETSAN's BPC developed solutions are utilized in various types and models of armored vehicles. ROKETSAN developed flexible layered armor cage systems (RPG shield) within the scope of counter terrorism to be used in various types and models of armored vehicles against RPG threats. After the development, test and qualification phases; delivery of RPG shields to customers has commenced. First applications were performed on M60 main battle tank, Cobra armored vehicle and Kirpi mine resistant armored vehicle. Design activities for other types of vehicles in the inventory of Turkish National Police and Turkish Armed Forces are going on. RPG Shield provides a light and strong solution for protection of different types of armored vehicles against RPG threat.

Characteristics

- Applicable to the lightest armored vehicles. (BR6, STANAG 4569 Level 1),
- Minimum modification on the vehicle.

Armor Kits Against Mine and Improvised Explosive Devices

ROKETSAN developed the armor and protection of ALTAY main battle tank and started to work on different ballistic protection systems through the experience gained therefrom. ROKETSAN, which observed that mines and IED have turned to be a first-priority threat for the military units especially in Iraq and Afghanistan experiences, is now developing various kits within this scope. These kits are currently designed in compliance with armored vehicles in the inventory of Turkish Armed Forces and they are tested in accordance with STANAG 4569 AEP 55 Volume 2 and Volume 3.

While mine kits provide solutions against mines between STANAG Levels II-IV, kits for protection from IED provides protection against pressure effect and particles generated by 50 kilogram explosive, which detonates near the vehicle within 5 meters.

Base Protection

Out of Area Camp Protection provides modular, portable and easily mountable ballistic protection against various threats for military camps. Protects the critical facilities and areas against kinetic energy ammunition, mortar and RPG threats.

Characteristics

- ▶ Maximum protection against up to 14,5 mm kinetic energy ammunition, 82 mm mortars and armor penetrating RPG rockets.
- ▶ Light, portable and easily mountable,
- ▶ Modular structure for all terrain and environmental conditions.

Force Protection System (RZB-20)



RZB-20; Composite Armor Block, developed by ROKETSAN BPC for increasing the protection of base zones in several locations of Turkey, is especially designed for medium caliber munitions such as 14.5 mm. ROKETSAN patented RZB-20 provides superior protection against threats, which arise from light weapons, shrapnel and high explosives and it has a multipurpose use characteristic. Armor block is one of the products developed for Force Protection System and because of its modular structure, it can be easily installed and changed quickly where and when necessary. RZB-20 is a high strength composite protection block containing various special materials, and it was designed and qualified in 2012. In the same year, deliveries were made to the Turkish Armed Forces. Studies have been completed on more modular and light weight versions of the RZB 20 Blocks, considering specific conditions of each base zone

Force Protection Systems (RZP-10)



RZP-10 is another sub-component of Force Protection System of ROKETSAN BPC and it was developed and qualified in 2012 for the protection of containers against blast effect and shrapnel of mortar ammunition. This system was delivered to the Turkish Armed Forces in the same year and it is a protection panel integrated to reinforced containers with elevated roof. ROKETSAN patented RZP-10 can be positioned quickly because of its modular structure and it can be changed where necessary.

Force Protection Systems (RZK-7)



RZK-7, used together with Composite Armor Blocks, is a caged structure and it was developed in 2012 by ROKETSAN BPC for the defense of base zones against RPG threats. Panels, which were qualified and started to be delivered in the same year, are sub-components of ROKETSAN Force Protection Systems. RZK-7 can be positioned quickly because of its modular structure and it can be changed where and when necessary.



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