

Tactical Protector Vehicle



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The Vehicles

Armored TPV Vehicles to be used by the police or the army.



TPV for for 8 Soldiers

1. Technical Description

1.1 Concept

The Armored vehicle is a lightweight 4x4 tactical vehicle designed to serve in various mission profiles such as urban law enforcement, peace keeping, homeland security and border patrol. These missions require a highly maneuverable, all-terrain vehicle that can withstand various threats including ambush, rifle fire and mines.

Meeting these requirements, while providing a low total cost of ownership, is accomplished by:

- a) Using a reliable "Off-the-shelf" chassis
- b) Upgrading some automotive components
- c) Integrating an armored crew compartment onto the vehicle's structure

The proposed vehicle offers a unique optimization between protection, payload and cost and is already being used for various SWAT and border-patrol missions in Bulgaria, Canada, Israel, Mexico, Sweden and other countries.

1.2 Automotive

The Armored vehicle is based on the Ford F-550 truck - a highly reliable and very common commercial truck all over the world. It comes with a powerful engine, automatic transmission and four-wheel-drive.

In order to allow worldwide serviceability for the automotive systems, the design does not exceed the chassis original performance criteria (GVW and axle load). The armored cabin utilizes the original dashboard, offering the driver and passengers the comfort of a standard Ford vehicle - instrument panel and other OEM features.

The following sub-systems have been upgraded in order to improve mobility, maneuverability, off-road performance and optimal weight distribution:

Vehicle Specifications

- Ford F-550 Super Duty commercial chassis
- 6.7L OHV V8 Power Stroke® Turbo Diesel engine. **(Non-EPA Compliant)**
 - Horsepower: 300HP @ 2800 RPM
 - Stationary Elevated Idle Control (SEIC)
 - Torque: 660 lb.-ft. @ 1600 RPM
- Torq Shift® Heavy-Duty 6-speed Select Shift™ Automatic Transmission
- Part-time 4-Wheel Drive
 - Electronic Shift On the Fly (ESOF) 4x4 System
 - 2-Speed Transfer Case (2.72/1:00:1)
 - Manual Locking Hubs
 - 4.88:1 Limited Slip rear differential
- Brakes - 4-wheel Disc Anti-lock Braking System (ABS)
- Steering – Power

- Steering Wheel - vinyl with tilt and telescoping steering column
- Vehicle Dimensions
 - Length: 200 in.
 - Width: 86 in.
 - Height (VCW): 96 in.
 - Wheelbase: 116 in.
 - Track: 74 in.
- Gross Vehicle Weight Rating (GVWR): 19,500 lbs.
 - Curb Weight (CW) with NIJ Level IV protection: 14,190 lbs.
 - Payload Capacity with NIJ Level IV protection: 5,310 lbs.
 - Gross Combined Weight (GCW): 26,000 lbs. (Includes Trailer)
- Heavy-duty Front Axle with 7500 lb. load rating
- Trailing Arm Rear Suspension with Coil Springs
 - Bilstein Shock Absorbers
- Michelin XDE 2+ 285/70R19.5 tires (4). Single rear wheels.
- Fuel Capacity: 36 U.S. gallon dual tank w/ locking gas cap
- In-Dash Air Conditioning, Heating, and Defrost
- Windshield Wipers - interval control
- Two-way Auxiliary Ventilation System
- FMVSS/CMVSS compliant

Performance Characteristics

- Underbody Ground Clearance: 15"
- Vertical Obstacle/Step Climb: up to 14"
- Curb-to-Curb Turning Circle Diameter: 41.9 ft.
- Wall-to-Wall Turning Circle Diameter: 42.6 ft.
- Uphill/Downhill Gradient Capability: 60%
- Static Side Slope: 39%
- Approach angle: 38°
- Departure angle: 30°
- Maximum vehicle sustained speed: 75 mph (tire rating)
- 0 to 60 mph: ≤ 19 sec @ CW / 25 sec @ GVWR

Body Configuration

- Five door vehicle configuration with Escape Hatch
 - Two side doors street side, hinged forward
 - Two side doors curb side, hinged forward

- Single rear door with hold back
- Roof escape hatch
- Ten window configuration, replaceable
 - Single-piece Windshield, no tint band
 - Front side doors single window each door
 - Rear side doors two windows each door
 - top window and bottom sniper window
 - Rear side wall window each rear quarter wall
 - Rear door single window
- Nine Gun Ports
 - Side door gun ports below all windows 2.6" wide x 5.3" tall (6)
 - Rear door gun port below window 2.6" wide x 5.3" tall (1)
 - Rear side wall gun ports below windows 4.6" wide x 6.5" tall (2)
- Exterior Handrails around all side doors and rear door
- Manual Keyed Standard Locks and Combat Locks
- Driver and co-driver cloth bucket seats, floor mounted
 - Manually Adjustable 8-way with 3-point seat belts
- Grated Side Steps (2), 8"W x 58 1/2"L. Ground clearance: 16.5"
- 4 Heavy-duty Tow Provisions; (2) Front (2) Rear
- Manual Adjust Side View Mirrors (2)
- Standard Paint: Charcoal Grey, Flat (interior and exterior)

1.3 Armor

Armored cabin offers a unique optimization between protection, payload and cost. This is accomplished by integrating the crew compartment into the vehicle's structure and choosing the right materials to meet the various threats. The following materials are used for the Armored Cabin:

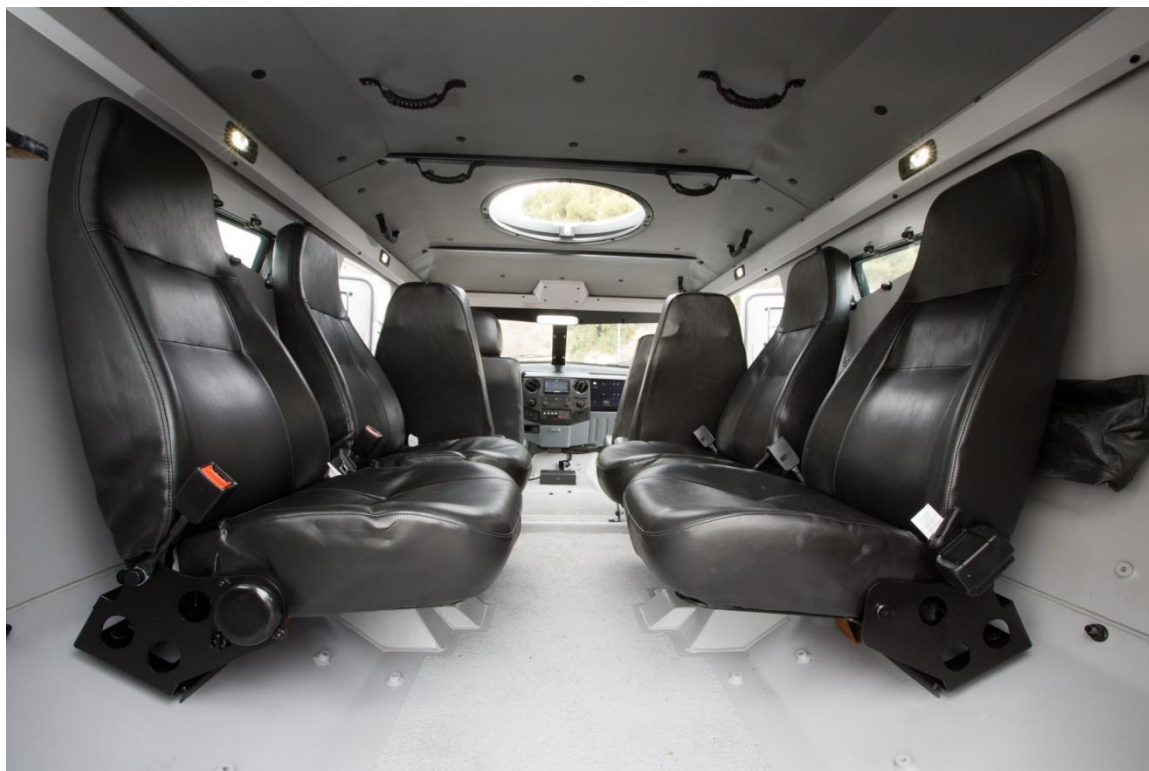
- a) **Advanced High Hard Armored Steel** - Provides an optimal armor solution in terms of protection, weight and cost effectiveness. Advanced High Hard armored steel technology offers the following advantages:
 - a. Improved Multi-Hit performance against fragments, shrapnel, splinters and direct small arms ammunition hits.
 - b. Reduce after-penetration effects in case of overmatching threats.
- b) **Armored Steel (AS)** - Various degrees of hardness provide high durability.
- c) **Ballistic Glass (BG)** - Made of Laminated Glass of a No-Spall type (a layer of PC laminated on the inner side of the glass). This laminate prevents penetration of small glass fragments inside the passenger compartment upon impact.

Ballistic Protection (NIJ Level IV)

- Ballistic Protection for:
 - Crew Compartment
 - Front Fenders
 - Critical Engine Compartment Components (Batteries, ECU, and ABS)
- Additional Bullets:
 - Multi-hit 7.62 x 51mm NATO M-80 ammunition
 - 5.56x45mm (.223 Caliber) including penetrator (M193/SS 109 Rounds)
 - AK 47 AP & .308 AP
 - 7.62 x 54R B32 API (Dragunov)
- Armored floor to provide DM51 protection
- All armor panels are equipped with an Overlap System in order to maintain ballistic integrity and prevent any threats from penetrating the vehicle.

1.4 Crew Compartment

Crew Seating - Provided with 8 crewmen seating arrangement as standard
All seats will be linen-covered and will have 2&3-points safety belts.



Top View – TPV Standard Seating Arrangement – 8 Soldiers

Doors - The vehicle is equipped with the following exits:

- a) Four (4) Side doors for easy embarking.
- b) One (1) Rear door for fast exit in case of emergency.
- c) One (1) Rooftop hatch for Emergency Exit and equipment maintenance. The roof hatch will be fixed; hatch door will open backwards.

All doors are armored and equipped with the following:

- a) Heavy duty door hinges combined with restraining mechanism.
- b) One key for all doors.



Gun Ports - The vehicle will be equipped with Armored Gun ports, allowing the crew to generate firepower from inside the protected vehicle without having to expose themselves to external threats.

The vehicle will have Gun ports as follow:

- a) One on each Side Door (total of 4)



Gun port

(External Bars to protect Door Windows and Side-wall windows from vandalism are **Optional Only**)

Electrical & Lighting Package –

Standard version of the vehicle is equipped with the following systems

- Dual-beam Halogen Headlamps

- ☐☐ All interior and exterior lighting LED (except headlamps/turn signals)
 - ☐ Lighting system has "Blackout" Capability
 - ☐ Ceiling mounted Interior Lighting: Dual Red/White LED
- ☐☐ Light Bar Prep Package
- ☐☐ Back-up Color Camera and Monitor with one-way microphone
- ☐☐ Back-up Alarm
- ☐☐ 200 Amp Heavy-Duty Alternator
- ☐☐ 750 CCA, 78 AH Dual Battery
- ☐☐ Auxiliary 12v Electrical System
 - 12V Alternator with dual batteries and disconnect
 - Can be combined with Ford system for emergency start
- ☐ AM/FM Stereo with digital clock and two speakers

Additional Equipment - The vehicle will also have the following:

- a) Two (2) Fire extinguishers (2 Kg)
- b) One (1) Driver toolkit - Emergency triangle, Wheel wrench, Jack.

1.5 Painting

- a) Paint color spec for exterior and interior is adaptable to customer requirement.

2. Delivery Schedule

No.	Item	Description	ARO+ [Month]
1	Armored TPV	First Batch of 11 vehicles delivery ARO	3
Notes			
Inspection and acceptance of the vehicles shall be done in USA, by a representative of the customer prior to shipment.			

3. Integrated Logistic Support (ILS)

3.1 Warranty

The warranty period for the vehicles will be One (1) year from the delivery date of the vehicles, subject to Warranty clause General Terms and Conditions of Sale which will be given upon request.

3.2 Training - Optional only

- a) **Operator Training** - Class and hands-on driving and troubleshooting.
- b) **Maintenance training** – Class and hands-on training covering maintenance procedures in the field and at the mechanical shop.

The training shall be conducted in Israel. A complete set of training material shall be given to every trainee.

