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GUIDELINES FOR PROCUREMENT OF ARMoured SECURITY VEHICLES

Introduction:

Due to the constant changes worldwide on global terrorism, the threat against organisations has also had to change to better protect their staff and employees. Many organisations are now faced with the regular purchase of armoured vehicles for protection of their staff in hostile environments; subsequently there has been a high demand for protected vehicles. As you would expect of any competitive market there are many new armourers that have appeared in recent years and are offering armoured vehicles alongside the more established armouring manufacturers. The problem faced by many organisations is that those making purchasing decisions treat an armoured vehicle like a standard vehicle. It is easy to assume all armoured vehicles are the same and therefore judge purely on price as you would with a standard vehicle. The quality of the armour installation, the armour materials, the essential security equipment and engineering upgrades varies hugely between companies and this is reflected in the price, the statement "you get what you pay for" is very true for the majority of armoured vehicles.

Professional Certification: Testudo Security Consultants Limited is a fully independent security consulting company which is not involved as a supplier of products or associated in any form or matter with any armoured vehicle manufacturers. Testudo Security Consultants Limited has a proven track record that is highly recognized and respected amongst its client base of foreign government and United Nations organizations as Armoured Vehicle Inspectors. As Testudo Security Consultant Limited has previously physically inspected and assessed the leading armoured vehicle manufacturers and suppliers, it is best qualified and suited to provide an unbiased report in all areas whether positive or negative to ensure the manufacturer strictly conform to the client's requirements and specifications.

Sourcing a professional independent security consulting company today is becoming a difficult task; it has identified the importance of ensuring the companies operate under the "codes of ethics" of the security industry. These regulations were established to protect clients from the non-professional companies who were offering services and products under personal financial gain from the vendor. Today; most organisations will only accept companies which are authorised as a professionally approved provider of security services. To demonstrate our continued commitment to clients to ensure they receive the best service possible, Testudo Security Consultants Limited has been subjected to detailed background investigations and certification to achieve full membership of the following associations:



**International Association of Professional
Security Consultants (IAPSC)**

ASIS International



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Mr. Brian T. Watkins CSC, Director of Testudo Security Consultants Limited is a fully Certified Security Consultant with International Association of Professional Security Consultants (IAPSC) and was awarded the title CSC by IAPSC after successfully passing the CSC exam in November 2010. He is currently to date the only IAPSC "CSC" qualified consultant in the Europe.

Since 2007, both Non Governmental Organisations (NGOs) and government agencies have trusted Testudo Security Consultants Limited to advise them on their armoured vehicle procurement. Our expertise and experience is gathered from physically conducting independent, diagnostic reports around the world. We've reviewed vehicle misuse and mechanical failure of all kinds. We know what to look for in an armoured vehicle, we know who can deliver ballistic integrity, and we know which manufacturers produce what level of quality. Our reputation is solid and unsoiled, and we have proven this as our list of clients increased to include some major organisations that we are proud to serve. Our inspections / reports and services have resulted in orders being cancelled due to poor quality or the suppliers not being able to deliver what they had originally quoted.

Research: The information in this report was gathered by Testudo's own Armoured Vehicle Technicians (AVT) from over 250 armoured vehicle technical inspection and assessment reports worldwide. Therefore the information is totally independent, professional advice and not just material found on the worldwide web (www) which has been cut and pasted into a report. It fills a much needed knowledge gap and will safeguard you from less reputable suppliers and inadequate vehicles. We hope this report gives you a clearer understanding of the different parts which make up an armoured vehicle and the different levels of protection and certification. It is important that different operational environments require different types of vehicles which specification most suits that region, e.g. you cannot use the specification for an armoured vehicle from Africa and use it in Afghanistan.

COMMON BALLISTIC TEST STANDARDS & LEVELS: The federal ballistic testing standards were revised due to the current types of modern munitions that were available and being used against armoured vehicles. This resulted in the BRV1999 testing certification being updated to the new VPAM 2009 BRV testing certification. Nowadays; it's often a word which is more frequently mentioned in tender RFQ's / ITB's etc concerning armoured vehicle specifications.

- Bullet Resistance Vehicle (**BRV**) as certified by the Beschussamt is German for Ballistics Ministry or National Ballistic Ministry..
- National Institute of Justice Standards (**NIJ**) United States of America,
- NATO Standardization Agreements (**STANAGS**)

The European body **VPAM** (Vereinigung der Prüfstellen für angriffshemmende Materialien und Konstruktionen) * (**English Translation**) **Association of test laboratories for bullet resistant materials and constructions (VPAM)** defined 14 protection levels instead of previous 7 levels defined by the standards EN 1522 / EN 1063.



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The VPAM VR certification testing procedures were compiled and established by six main member states; Austria, Germany, Belgium, Switzerland, Holland and recently Norway. Their respective departments are listed below.

- Rüstungsdirektion, Amt fuer Rüstung und Wehrtechnik, Felixdorf (A)
- Beschussamt Wien (A)
- Royal Military Academy, Dept. of Weapon Systems & Ballistics (ABAL), Brussels (B)
- Universität Bern, Institut für Rechtsmedizin, Bern (CH)
- Aarmasuisse, Wissenschaft & Technologie, Thun (CH)
- Beschussamt Mellrichstadt (D)
- Beschussamt München (D)
- Beschussamt Ulm (D)
- Deutsche Hochschule der Polizei, Polizeitechnisches Institut (PTI), Münster (D)
- vts Politie Nederland, Apeldoorn (NL)
- TNO Defence, Security and Safety, Rijswijk (NL)
- Politiets data - og materielltjeneste, Oslo (N)
- The German Police institute acts as the central administration office.

Certification Standards: BRV 1999 VR6 and VPAM 2009 BRV VR7

In the past; tender specifications were drafted for previous models, a recent change was implemented in the ballistic testing standards for armoured vehicles. The requirements on the certification of the product was set at a minimum level of BRV1999 VR6, thus also accommodating those that have recently certified to the VPAM 2009 BRV VR7 standard. As the Toyota Land Cruiser 76 has been in production since mid 2007 and has been offered by armouring companies since 2008 after research and ballistic testing to offer the vehicle as a VR6 fully certified vehicle. The previous classification was BRV1999 which means Bullet Resistance Vehicle standards set in 1999. The new current classification introduced in May 2009 is VPAM 2009 BRV Bullet Resistance Vehicle standards set in 2009. Armouring companies have been supplying the armoured version of the Toyota Land Cruiser 76 since 2008 and have had sufficient time to certify the vehicle product. Under the new regulations BRV1999 VR6 is classified as VPAM 2009 BRV VR7. Armouring companies have misled certain clients by quoting they can offer a VR7 under the new regulations as a higher specification than BRV1999 VR6. This is not true as both vehicles are the same standard. The BRV1999 VR7 is now classified under VPAM2009 as BRV VR9 and this must NOT be misunderstood.

Independent Testing: Since the requirement for independently tested and certification was enforced, this has also caused some confusion and irregularities. Currently there are three main recognized and accepted ballistic testing authorities located in Germany. There are also three companies in Europe that offer and conduct additional services in vehicle inspections and quality. IABG (Industrieanlagen-Betriebsgesellschaft mbH), QinetiQ, and Testudo Security Consultants Limited.

IABG was founded as a central analysis and testing organisation for the aeronautics industry and the Ministry of Defence in 1961 as part of an initiative by the German government. The service offering of IABG includes analytical, technical and operational solutions in the following areas: Automotive, InfoCom, Transport & Environment, Aeronautics, Space and Defence & Security.



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Armoured Vehicle Assessment Methods

An armoured vehicle manufacturer can have their products independently assessed through two different, but entirely complimentary methods. We recommend that both assessments are available to provide a complete understanding of the armouring manufacturer's abilities.

Ballistic Test Center Germany (Beschussamt)

A sample vehicle is constructed by the armouring manufacturer specifically for a live fire test. This vehicle is presented to one of the three Beschussamt offices (located in Ulm, Mellrichstadt or München) and subjected to live fire tests. The live fire tests are carried out as per the customer's (the armouring manufacturer) requests. For example, a manufacturer may wish to certify his sample vehicle to meet the VR6 (BRV 1999) or VR7 (BRV 2009) protection level. Carefully aimed shots of the relevant ammunition are fired either by a sharpshooter or, in some cases, by a remote controlled, laser-sighted test barrel at the traditionally weak areas of an armoured vehicle; window frames, door edges, welded areas from all angles. The roof, sides, front and rear are all tested. This procedure takes several days with the velocity of each shot being measured to ensure the hand-loaded ammunition meets the velocity stipulated by the BRV guidelines.

Notes:

1. This is a practical test that simulates a specific threat
2. The test concerns a single vehicle and is not proof that all vehicles from the armouring manufacturer are identically constructed

QinetiQ

QinetiQ was formed from in 2001 from part of the United Kingdom's Defence Evaluation and Research Agency (DERA) and is a massively capable, multi-disciplined organization.

Armouring manufacturers may request that their vehicles are audited by QinetiQ. The audit takes two days and includes at minimum the following areas:

Review of armour materials

Materials used to protect the firewall; sides, roof, floor, door glass and windshield are compared with material certificates to ensure the ballistic protection meets the claimed ballistic standard

Full vehicle testing

If the armouring manufacturer has had a vehicle fully tested by Beschussamt then the test vehicle is inspected to ensure the materials (type and thickness) and construction are identical to those in production.

Review of armour design drawings

The ballistic integrity of the vehicle can be evaluated by inspecting the 3D CAD data used in the vehicle design and construction. Evidence of uniform production is gained by the comparison of the technical drawings (3D CAD) and the steel sets of the vehicles in production.



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Review of vehicle in build

The vehicles in production are inspected to ensure they are identical to the technical design and, if the manufacturer has passed an independent live fire test, with the test vehicle.

Additional items

The quality of battery, ECU, fuse box, brake master cylinder and fuel tank protection are reviewed along with items such as hinges, door check straps, blast locks and operable door windows

Automotive modifications

The suspension, brake, tyre and wheel modifications are inspected for quality and design

Quality procedures

The management of component supply and manufacturing is inspected along with any company (ISO) and individual (welding, etc.) qualifications.

Notes:

1. This is a very thorough audit of all aspects concerning ongoing armoured vehicle manufacturer and is not a "snap shot" of an individual test vehicle
2. There is no live-fire aspect to this audit

1.0 Introduction

Buying armoured vehicles is a difficult business. Buy cheap and the money saved is soon lost when unreliable vehicles breakdown and expensive upgrading is the only remedy. When you buy cheap you're buying ineffective components, and that can cost the ultimate price – lost lives.

An effective product performance evaluation requires sophisticated ballistic analysis. Yet we see many cases where the purchaser has no previous experience, and neither a security, military or police background. We regularly see customer loyalty to a make of vehicle and supplier regardless of quality and reputation. And lack of knowledge often means the latest, often critical, technological advances in ballistic security are overlooked. So while air filters or high altitude compensatory devices may seem irrelevant, installing the wrong make or failing to install what are relatively inexpensive items could lead to vehicle failure in a highly dangerous situation. Organised armoured vehicle customers in comparison with individual purchasers, standardise their information, determine and compare alternatives, and often establish better decision criteria, undertaking analysis on performance against product not on price alone.

The following list is to provide clarification on the armouring levels and also the ballistic protection factor of a vehicle. The most misunderstanding is the difference between armouring levels and quality.



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2.0 Certification

An armoured vehicle manufacturer should produce certificates to verify it complies with the ballistic level of construction. Yet in the past, procurement officers and agencies have been misled by the two types of certificates issued: Certificate of Material and Certification of Vehicle Resistance Level.

2.1 Certificate of Materials (Components): This type of certificate is issued when a manufacturer's submitted sample of steel plates and ballistic glass window (i.e. the materials only) have passed testing by a Federal authorised institution. The institution will shoot three rounds in a 12cm triangle into the armour; the material cannot be penetrated in any way. On passing this test a certificate is awarded according to the level of testing, such as B6 (Ballistic Level 6). Some armoured vehicle manufacturers will arrange for glass and steel samples to be officially tested. The resulting certificate can then be issued in the name of the armouring company instead of the steel or glass manufacturer. This material certification can be misrepresented as a full vehicle test certificate. While it is a relatively straightforward procedure to successfully withstand a ballistic test carried out on a square of steel or glass on a test range, it is quite another challenge to integrate ballistic materials into a vehicle. Many obstacles have to be overcome such as the steel becoming weakened by overheating during welding, insufficient overlap between materials, poor coverage of difficult to reach areas (behind dashboard, inside door pillars, etc). (See 2.5 Main components/alterations on armoured vehicles.)

2.2 Certification of Vehicle (Product): This certification is awarded when an armoured vehicle manufacturer's finished product has passed rigorous and strict testing by a Federal authorised institution. The finished vehicle is shot using different calibres of ammunition according to the protection level being tested against. Sometimes up to 580 rounds are fired against all vulnerable points, side and rear doors, front windscreen, side and rear glass windows, door and window frame overlaps, the roof segment at a 45 degree angle and the engine compartment. The vehicle is then tested against the simultaneous explosion of two DM51 hand grenades on top and underneath the vehicle. If there is even the slightest penetration of any kind the vehicle will fail the test. On passing the test the armouring manufacturer is issued a certificate of VR (Vehicle Resistance Level), such as VR6 described in the test above.

SPECIAL NOTE:

When a manufacturer can only present copies of the certificate of materials then the finished product has NEVER been tested and there's absolutely no guarantee that the vehicle will withstand an attack of any kind whether by small-arms fire or explosion from an Improvised Explosive Device (IED). So in the event of an attack from an AK47 assault rifle for instance, fragmentation from – or the complete bullet(s) – could enter the space between the door pillar and door or even the roof causing serious injuries or even fatalities. (See the ballistic chart at the end of this report)



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2.3 Vehicle Certification (Product)

The following is a brief explanation of ballistic testing on the end product by an independent federal institution.

1. The armouring manufacturer presents the finished product to the test centre. They have no influence as to which areas or how the vehicle is to be tested.
2. The strict testing criteria are conducted over a period of days. All information and data from these tests are recorded.
3. The vehicle is tested at different angles using various types of ammunition, where a particular area or part of the vehicle will be shot. Each time the testing authority will mark the area and then after the shot have been fired the area is inspected for signs of penetration. If the vehicle is penetrated then the product has failed the test.

Some vehicles have had to be resubmitted up to five times before being awarded the certificate. With such rigorous testing, it's in armouring company's financial and business interest to build a quality product and pass the test first time. And while testing costs are extremely expensive it ensures the product's ballistic integrity.

Certain governments will only buy from manufacturers with vehicle certification yet the United Nations agencies and other NGO agencies are well known to procure vehicles through a bidding process and award the contract to the cheapest supplier. This usually results in the vendor providing certificates of materials and not the vehicle being certified. Security is therefore compromised and while buying on price alone will save money, it may not save the human lives of those operating inside the vehicle.

2.4 The different levels of certification

There are different levels of certification, all differing depending on the level of ballistic integrity offered. Below are the most common levels for vehicles that are deployed for use in operations where the risk of attack is high.

Vehicle Resistant Level 6 (BRV1999 VR6 & VPAM 2009 BRV VR7)

A fully certified security armoured vehicle that has successfully passed the standards in all aspects of the threat level of Ballistic Level B6, including test by the following:

- 5.56 x 45mm (SS109)
- 5.45 x 39mm
- 7.62 x 51mm
- 7.62 x 39mm
- 2x DM51 hand grenades detonated simultaneously directly on top and underneath the vehicle



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NATO Standardised Agreement 4569 LEVEL II (STANAG 2)

A fully certified security armoured vehicle that has successfully passed the standards in all aspects of the above threat level of Ballistic Level B6 and Military Standards, including test by the following:

- 7.62 x 39mm AP BZI (Armour Piercing)
- 7.62mm x 54R CT2M (Dragonov)

Vehicle Resistant Level BRV 1999 VR7 & VPAM 2009 BRV VR9)

A fully certified security armoured vehicle that has successfully passed the standards in all aspects of the threat level of Ballistic Level B7, including test by the following:

- All the above calibres
- 7.62 x 51mm AP (Armour Piercing)

Note: Remember it is not the weapon but the type of bullet that causes the damage.

2.5 Main components/alterations on armoured vehicles

Chassis

The chassis bears the vehicle's weight so after adding armour to a vehicle it must be specifically re-engineered. The armouring materials generate much higher vehicle kerb weights, and if ignored or incorrectly adjusted will result in the main chassis fracturing.

Suspension

To support the increased weight and payload capacity of the vehicle, modifications are made to the suspension assembly, including up-rated/reinforced springs and coils, and the addition of heavy-duty shock absorbers and stabilisers.

Brakes

Due to the increased vehicle weight the brakes must be upgraded with different brake discs, pads/shoes and/or brake lines to ensure the vehicle can safely stop effectively under the additional weight. Standard or poor quality brakes will result in overheating, inadequate safety and high maintenance costs due to frequent renewal.

Doors/Pillars

Heavy duty and strengthened door hinges, doubling plates, door catches and other buffer systems are all fitted to compensate for the additional weight of the armour. Specially designed and constructed door hinges should replace the standard door during re-assembly in the production facility. Yet some manufacturers simply add a steel plate to the original door hinge – then claim it's reinforced!

Armour Plating

Armour plating is added to the vehicle to meet required ballistic levels. Yet some vehicles use a base unit that can't support the over-weight ration, such as the lightweight and weak chassis found on common mini-buses with CEN B6 armouring.



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Opaque Armouring Materials (Steel)

Steel supply varies with demand and substitute supplies are sometimes introduced in the middle of production. Therefore, due to the change of the iron ore content and quality, steel suppliers are required to conduct ballistic testing on each batch. And controls by the armouring manufacturers must act as proof that the ballistic material stated is being built into all of the vehicles. Further tests are required on the Heat Affected Zones (HAZs), where welding brackets, nuts, bolts, rivets, screws and other secondary projectiles cause ballistic steel to become brittle and reduced making them potential penetration areas.

Transparent Armouring Materials (Glass)

On armoured vehicles the glass used is critical. The glass is specifically designed with extended edges and should ensure ballistic integrity while retaining good optical quality. Manufacturers that supply ballistic glass are subject to regular testing, and the better quality glass has higher resistance to the stress factors when exposed to extreme (hot/cold, dry/humid) weather conditions.

Window / Door Frames

Certified vehicles have built in overlaps of ballistic steel that reinforce the danger areas where steel meets glass. These potential weak spots will have been rigorously tested during certification of the vehicle.

Ballistic Sealing

Professional manufacturers will install ballistic overlaps around the door frames and spall returns. And vulnerable areas – the dashboard, bulk head, firewall armouring and openings for normal vehicle functions (steering column, foot pedals and controls) – will all be safeguarded by testing during vehicle certification.

Engine Compartment Protection

Armouring manufacturers are obliged to armour the passenger compartment – a key safety cell. And the best manufacturers also build in as standard – or offer as additional precautions – additional armouring of side wings, vehicle bonnet, radiator grill protection, batteries and engine management system (ECU). Once again, these potential weak spots are tested during vehicle certification.

Fuel Tank Protection

Particular attention must be paid to the quality and type of protection for obvious reasons. There are three approaches to protecting fuel tanks:

- **Self-Sealing fuel tanks**

This involves enclosing the tank in a rubber-like material that, in the event of a puncture, will “flow” into the hole and reseal the tank.

- **Protected fuel tank**

The tank is protected by either armoured steel or ballistic fabric known as blast mats. The difference between ballistic steel and a blast mat is that the steel is rigid and the blast mat will absorb the energy by deforming inwards towards the tank itself (away from the blast). If the fuel tank is protected with a blast mat then, in the event of an attack, the mat will deform and possibly puncture the tank.



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Note: Some vehicles' spare wheel is located beneath the vehicle floor. This presents a problem in the vehicles with dual fuel tanks because, when the second fuel tank is protected with steel, the space left is sometimes no longer enough to refit the spare wheel underneath the vehicle. Some manufacturers will therefore not protect the second fuel tank resulting in a potentially lethal vulnerability.

- **EXPLOSAFE®**

This is especially important in gasoline models. EXPLOSAFE® treated tanks contain a honeycomb structure that prevents large pockets of vapours forming within the tank. Since there is no vapour, there is nothing to cause an explosion.

Electrical Wiring

Armouring manufacturers normally modify the vehicle by adding additional wiring channels for secondary batteries and window lifters. In some cases they also fit a second fuse box. Occasionally, because of the changes, the vehicle's manual becomes obsolete and you'll need circuit/wiring diagrams.

Warranty / After-Sales support

Once the OEM vehicle has been modified in any way from its original form then the manufacturers warranty is immediately void. For example "Toyota Japan" will not cover any case for warranty claims. This is why the armouring manufacturer has to accept full responsibility for the vehicle after the armouring process has been completed. This avoids the excuse that the transmission failed and the armouring manufacturer replies "*that is a Toyota problem as we never modified the transmission*" This case has been used in the past with some armoured vehicles.

Many armouring manufacturers offer one or two-year warranty covers but fail to honour their obligation in the event of breakdown or problems. Others attempt to pass on the standard OEM warranty hoping that their armouring is never noticed by the local OEM dealer. Naturally, in the event of a problem, local dealerships declare the warranty void since the vehicle has been armoured. In the Middle East we've witnessed numerous first-hand arguments around this issue, some dragging on for six months or more. So we highly recommend you demand written proof from the armouring manufacturer that the local dealership agrees to cover the warranty in the event of vehicle faults.

We've also experienced poor after-sales support where an armoured vehicle manufacturer is reluctant to deploy technicians into theatre where the vehicle(s) are operating. And while some reported defects or claims can be decided by providing photographic evidence, on-site inspections by qualified technicians are often required to diagnose whether the problem is due to poor maintenance or misuse. So knowing which manufacturers offer what after-sales support is worth considering before you buy.

Covert appearance

To avoid drawing attention to the vehicle, its overall exterior appearance should retain the look of the standard model. The same goes for the interior, ensuring details such as exterior body panels are not obviously altered.



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2.6 Base Vehicle (Donor Vehicle)

Original Equipment Manufacturers (OEM) such as Toyota, Mitsubishi, Nissan and Mercedes operate globally and every regional market is different. For example, the technical requirements of the Middle East (Gulf Specification) are different from Europe (EU Specification) or the United States (US Specification). An armoured vehicle manufacturer must base the conversion on a vehicle with appropriate regional specifications. This is important for vehicle longevity – if an armoured vehicle is operating in the Middle East then it requires the heavier duty cooling and air conditioning systems that make up the Gulf Specification configuration. The availability of spare parts must be considered if a vehicle with incorrect regional specifications is operated out of area.

Some armoured vehicle manufacturers will use the cheapest possible base vehicle. This will reduce the overall cost of the complete armoured vehicle and give the illusion of value for money. The procurement agency must specify the region in which the armoured vehicle will be operated.

3.0 Summary

Threat level and vehicle selection

If you were looking to buy a mountain bike you'd want to assess its quality and investigate suppliers and manufacturers. With prices ranging from US\$150 to US\$15,000 you'd soon realise some are specifically built as mountain bikes to cope with the terrain and harsh conditions, others made to simply look like mountain bikes. In order for the bicycle manufacturers to sell their models cheaper than the better quality bikes they use low quality parts. And in very quick time these low quality bikes develop cracks, require constant repairs or simply fall apart.

The same analogy can be used for armoured vehicles. There are high quality armoured vehicles and low quality ones passed off as armoured vehicles. And you get what you pay for. Yet armoured vehicles cannot afford to be sub-standard. High risk areas require high quality vehicles, with vehicle certification not simply certification of the component materials.

We've all seen the dangers of operating in Iraq with the increased use of IED's, suicide bombers and more recently, Explosively Formed Penetrators (EFP). Yet many are of the opinion that, against these types of attacks, a vehicle will fail regardless of vehicle certification. And although standard VR6, STANAG II or VR7 are not designed to protect against these devices, there are people alive today who as vehicle occupants during such attacks can testify to the ballistic integrity of high quality, well-engineered armoured vehicles.

Therefore our recommendation for those operating in Iraq and Afghanistan, where the likelihood of attack is extremely high, is that the minimum level be VR6. While our highly recommended level is STANAG II, where ballistic glass is upgraded from the standard 39mm to 55mm, and the ballistic steel is increased throughout the vehicle and supplemented with composite spall lining material inside the enhanced ballistic steel protection. What's more, we always recommend you demand that the vehicle roof and floor armouring be made of ballistic steel with a minimum of 6mm, and not blast mats or Kevlar alone.



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HOW CAN YOU ENSURE YOU ARE GETTING VALUE FOR MONEY?

Our Services: Testudo Security Consultant Limited is a fully independent security company with substantial experience and a respected reputation in providing technical services. One of our services is assistance in procurement standards and the evaluation of vendor's quotations when concerning armoured vehicles. We are registered security consultants to a large number of government agencies and NGO organisations with specialised experience in ensuring the equipment supplied by the manufacturers strictly conform to the client's requirements and specifications.

PRE – TENDER SERVICES

1. Tender Consultation Part 1: Analyses the vehicle specification that has been drafted and ensure it conforms to the current ballistic requirements and standards. Provide any amendments and advice necessary on the draft before it is distributed to vendor for quotations.
2. Tender Consultation Part 2: Assesses the vendors that have participated in the tender and provide technical evaluation of the quotations to ensure they fully comply with the specifications and manufacturing standards. Lists of those who fully meet the requirements are then provided to the client.

Important Note: As an independent security consulting company; we will NEVER name a single armouring manufacturer or company who should be awarded the contract for the tender. The final decision in choosing the armouring manufacturer or company remains the responsibility and task of the procurement unit.

TECHNICAL INSPECTIONS DURING PRODUCTION AND / OR UPON FINAL DELIVERY

1. Evaluation Part 1: Initial inspection of the vehicle(s) after the completion of the first stage of armouring (no interior fitted) to ensure that the materials used are supported with the necessary documentation and the same as the certified test vehicle. All welding joints are inspected for the dangers of heat stress areas and the quality of materials used. Other additional checks are conducted which are only identified on location to ensure there is no manipulation.
2. Evaluation Part 2: A final inspection is conducted once the vehicle is completed and ready for delivery. This entails a full inspection to ensure all functions; controls and additional equipment operate as required. Wheel and tyres are correctly rated for armoured vehicles and not the OEM system being refitted. An end quality control check and test drive to ensure stability, performance and safety standards (suspension/brakes) are adhered to. As most procurement contracts are final payment prior to shipment, this ensures the quality of the vehicle(s) is maintained and the organisation receives the vehicles fully inspected, tested and ready for use.

Why use Testudo Security Consultants Limited? Who better to give you professional advice than an independent company, who is not just trying to give you the answers you want to hear just to close the deal? A salesperson will push and push until they get the contract.