

VESTGUARD UK

a Great British company...



GUIDE TO BODY ARMOUR AND BUYING BODY ARMOUR

2017 Edition

VestGuard UK Ltd

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INTRODUCTION

VestGuard UK is a leading international manufacturer and supplier of body armour with our manufacturing facility here in the UK ensuring our brand is one of quality and safety.

Through continued research and development VestGuard are proud to be at the forefront of the body armour industry with new product and technologies. We offer our customers free expert advice on the best armour to choose for their operational requirements and the location they will be travelling to. We use years of research and customer interaction to build our knowledge on this life saving subject and back our words up with professional indemnity insurance.

IS BODY ARMOUR BULLET PROOF?

No body armour is completely 'bullet proof'. Body armour is generally known as bullet resistant. Bullets or knives are trapped by the fibres in the soft armour. The layers of unidirectional ballistic fibres, which our body armour is manufactured from, will capture the energy, and reduce the speed of the object. The energy is then spread out over a greater area, causing the projectile or weapon to stop within the material. The vest absorbs most of the energy, but the force generated by the impact will still cause the body armour to push back into the body just like if you were to push somebody.



Testing measures the deformation of body tissue under the vest which is also known as 'back face trauma'. VestGuard body armour is made to minimize this blunt trauma by being stiff enough to resist deformation and spread the pressure along the vest rather than through the vest. A well-constructed vest will resist hits in the same general area as well as bullets coming in from different angles.

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TESTING AND CERTIFICATION

Body armour is rated in terms of its ability to stop bullets. There are two recognised standards in the world, the international standard and most commonly used is provided by the National Institute of Justice (NIJ) with UK standards regulated by the Home Office Centre for Applied Science and Technology (CAST).

It is advised that a purchase is made from certified manufacturers to ensure the vest has been proven to pass the required standard. Proof of such pass can be requested which every manufacturer will possess. Proof from a legitimate test facility will help to ensure the product is suitable for your requirements. If you are ever in doubt you can contact the test house direct to ensure the certificate is legitimate.

Body armour is available in a range of protection levels. Each threat level provides a specific stopping capability by combining layers of various materials to achieve the requirement. The chosen level of protection depends on the environment an individual is travelling to. The threats can be categorised as follows:

- Hand guns
- Rifles
- Knives and edged weapons
- Spikes and needles
- Fragmentation and explosions



By identifying the specific threat faced in an environment a solution can be made up of a variety of different products to protect against the potential threat. The more protection you require the heavy or bulky the vest will be become therefore it is important to identify exactly what threat you will encounter in the environment you will be working or travelling to. Over burdening yourself with unnecessary protection will only reduce the comfort and wear ability of the vest and this will reduce your desire to wear the vest even though it will offer lifesaving protection.

Most fatalities occur when an individual is not wearing their armour so it is important to ensure that the armour is comfortable as possible to wear for as long as required.

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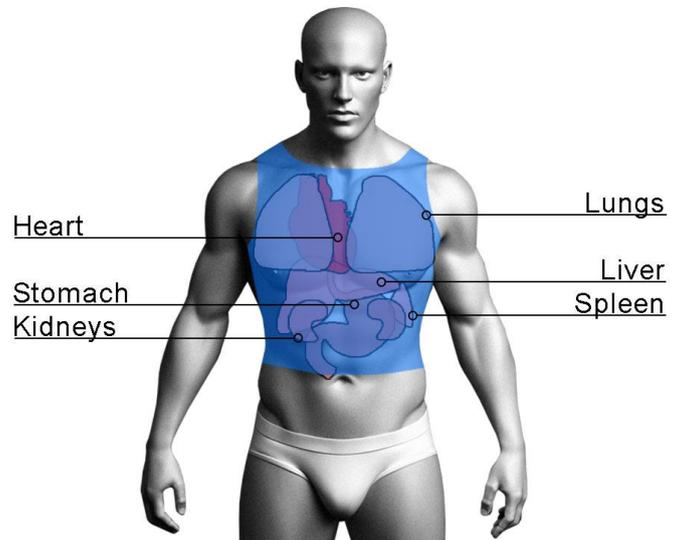
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AREA OF PROTECTION

It is important to realise that whilst body armour is there to protect you, it will not offer unlimited protection against all threats. Body armour is designed to provide protection against certain threats to vital organs like the heart, lungs, and stomach.

There is always a balance between weight, comfort, protection, and price. Whilst you could be protected from head to toe, it would not be practical or comfortable to wear for extended periods and would be very costly. Similarly, if you buy a lighter solution, the price may be lower but the protection would also be reduced.



The area of protection should be suited to what you will require to ensure safety and the ability to do the tasks you need to do. In most instances an individual risk assessment to understand the need will help identify this, along with how much you can afford and advice from suitable sources, like the VestGuard team.

We would typically recommend the following solutions to our customers:

| | Handguns | Rifle | Knife | Needle | Blast |
|---------------------------------------|----------|-------|-------|--------|-------|
| UK General Use | x | | x | | |
| UK Government and Councils | x | | x | x | |
| UK Prison and Firearms | x | x | x | | |
| UK Emergency Services | x | | x | x | |
| Europe General | x | | x | | |
| Europe Firearms | x | x | x | | |
| Afghanistan, Iraq, or other War Zones | x | x | | | x |
| Africa | x | x | x | | x |

It is important to understand your daily tasks. VestGuard body armour is ergonomically designed to sit on or around the belly button. For individuals using vehicles during the day the body creases below the belly button, and anything too long will ride up as you sit.

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SOFT ARMOUR SOLUTIONS

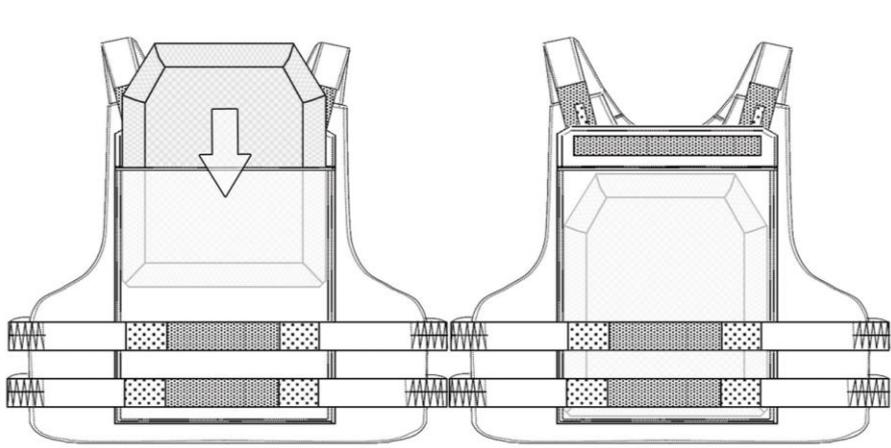
The core ballistic part of every unit of body armour is a pack of ballistic material. The composition of the internal ballistic material is determined by the protection required. Each vest will contain a front and back ballistic pack, and depending on the requirement may also include other component packs like shoulders, collar, groin, throat or bicep.

Key features of VestGuard soft armour solutions:

- Sonic welded outer bag makes the panel's water proof improving the longevity
- Removable for easy care and for outer carrier to be washed
- Add or remove components to suit the needs of individual missions
- Lightweight, thin and flexible advanced construction improves user performance.

UPGRADING WITH HARD ARMOUR

Many overt vests have front and back pockets which can be used to insert upgrade plates. These plates, when used with soft armour will increase the performance level of the vest to include rifle fire, determined by the plate used and the protection level specified. Armour plates can be added and removed depending on the environment and operational need.



Key features of VestGuard Hard armour solutions:

- Sealed units ensure full resistance to external environmental conditions
- Add or remove to suit the needs of individual missions
- Full range of protection levels available to ensure best protection and weight

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STANDARDS

Whilst there are many standards adopted across the world, the two main protection standards used internationally and in the UK, are briefly described below.

NIJ Standards

NIJ Level II (2) Handgun

Flexible soft armour protects against 9mm FMJ RN bullets, and 357 Magnum JSP bullets. Also provides protection against all threats below this level including a Shotgun, sub machine guns and some edged weapons.

NIJ Level IIIA (3a) High Velocity Handgun

Flexible soft armour offers protection against high velocity 9mm FMJ RN bullets, and 44 Magnum JHP bullets. Also provides protection against all threats below this level including Shotgun, sub machine gun and edged weapons.

NIJ Level III (3) Rifle

Soft armour ICW (In-Conjunction-With) Hard Armour Plate (HAP), providing protection against rifles including 7.62mm FMJ bullets (M80). It also provides protection against all threats below this level. Some plates may also include protection against AK-47.

NIJ Level IV (4) Armour Piercing Rifle

Soft armour ICW (In-Conjunction-With) Hard Armour Plate (HAP), providing protection against .30 calibre armour piercing (AP) bullets (M2 AP). It also provides protection against all threats below this level.

| | NIJ level II | NIJ LEVEL IIIA | NIJ LEVEL III UPGRADE | NIJ LEVEL III+ UPGRADE | NIJ LEVEL IV UPGRADE |
|------------------------|--------------|----------------|--------------------------|---------------------------|-------------------------|
| Thickness | 3-5mm | 5-7mm | 18mm | 18mm | 14mm |
| 9mm | x | x | x | x | x |
| .357 Magnum | x | x | x | x | x |
| .44 Magnum | | x | x | x | x |
| 7.62x25 Tokorev | | x | x | x | x |
| 7.62x39 AK47 | | | x | x | x |
| 7.62x51 M80 | | | x | x | x |
| 5.56x45 SS109 | | | | x | x |
| 30.06 AP | | | | | x |
| Test Distance | 5 metres | 5 metres | 15 metres | 15 metres | 15 metres |

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Home Office UK CAST Standards

KR (Knife Protection) Levels 1-3

Flexible or rigid panel solution, to protect against edged weapon attacks from knives. The higher the protection level rating the heavier the attack from the edged weapon. KR1 is suitable for 90% of requirements.

HG (Hand Gun Protection) Levels 1-3

HG1: General Duty soft armour for low risk situations. 9mm and .357 Magnum

HG2: Special duty soft armour intended for use with firearms teams. 9mm and .357 Magnum.

HG3: Heavy duty armour intended for use in firearms operations. 5.56 x 45mm NATO.

RF (Rifle Protection) Levels 1-2

RF1: Offers protection against soft-core ammunition fired from rifles. Usually used in conjunction with HG2 armour. 7.62mm rifle.

RF2: Offers protection against steel core high power ammunition fired. 7.62 x 51mm NATO

SP (Spike Protection) Levels 1-3

Flexible or rigid panel solution, to protect against spike and needle attacks. The higher the protection level rating the heavier the attack from the weapon. SP1 is suitable for 90% of requirements.

NATO STANAG 2920 Fragmentation Standards

STANAG 2920 is used to measure a materials ability to stop fragments and projectiles. The measuring technique is used in all situations where fragments are a concern. Tests to STANAG 2920 are conducted by shooting FPS (Fragment Simulating Projectiles) at the test sample at different velocities. Each FPS velocity is recorded. By altering the velocities, an estimate of the ballistic tolerance can be calculated, which is the speed up to which the material defeats incoming fragments.

The test that VestGuard undertakes is known as the STANAG 2920 v50 test. This is an internationally recognised standard for assessing the fragmentation resistance of personal protective equipment.

| Fragmentation Level | F1 | F2 | F3 | F4 | F5 |
|-----------------------------------------------|---------------|---------------|---------------|---------------|---------------|
| Minimum Fragmentation Velocity V50 m/s (ft/s) | 400 (1310) | 450 (1470) | 500 (1640) | 550 (1800) | 600 (2130) |

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CHOOSING THE RIGHT BODY ARMOUR

We realise many of our customers do not know everything about body armour, so we are here to help in the decision to choose the right kit fit for purpose. It is important to determine which level of protection is most likely required. Details about the threats encountered in various parts of the world can be provided by contacting VestGuard who will be able to advise what levels are required as a minimum for each destination. In some cases, it may be wise to contact the Foreign and Commonwealth office if the destination is a war zone to seek further guidance on other aspects of your kit.

Only buy the level of protection needed or recommended by an expert. Buying higher levels may not always be necessary and may reduce comfort and increase the risk of not wearing the armour when most needed. Choose a suitable model that will provide the right protection for the requirement. It may be worn for many hours, sometimes all day, every day.

Living and Working in the UK

The biggest threat in the UK is based around knives and small hand guns. A lightweight, flexible vest is required that keeps the wearer well protected, that can be worn all day. To resist knives, VestGuard would recommend NIJ level II (2) or IIIA (3A) body armour. Vests have been tested to withstand a standard knife attack. The Patented Anti Blunt Trauma protection in all our vests increases the resistance rating against knives.

For general security, and personal use, a concealable, soft body armour vest in NIJ Level II (2) protection will do the job or an CAST HG1 KR1. A low-profile model has recently been introduced to offer close protection for use under normal street wear without attracting attention.

Living and Working Abroad

The world is a big place, and whilst we cannot tell where our customers, we can advise what is required for each destination.

Soft Armour Panels alone (NIJ Levels IIA, II and IIIA) stop pistol and fragmentation threats, but it takes a Hard Armour Plate to stop rifle bullet (NIJ Levels III and IV).

For Iraq, Afghanistan, or other high risk areas, we would recommend a protection level of NIJ Level IV (4) and no less. It is worth considering shoulder and groin protection as well when purchasing hard for higher threat environments.

VestGuard is the only UK company with a certified Level IV (4) solution

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CHOOSING THE RIGHT SIZE

It is important to ensure that the correct size armour is selected. Smaller armour may not cover all the vital organs, and bigger armour will be heavier than needed. Suitable armour will offer side protection as well as front and rear protection. Small armour may leave the sides exposed.

Ensure the vest does not ride up into the throat when squatting, sitting, or bending. VestGuard body armour has been ergonomically designed to sit just above the belly button. At this point, the body begins to crease when sitting, causing the body armour to rise if any lower.

| | CHEST | | WAIST | | HELMET | |
|---------------|---------|---------|-------|---------|-----------|-------|
| | INCH | CM | INCH | CM | INCH | CM |
| Small | 34 - 38 | 86-96 | 26-30 | 66-76 | 20.5-21.2 | 52-54 |
| Medium | 38 - 43 | 96-109 | 30-34 | 76-86 | 21.2-23.2 | 54-59 |
| Large | 43 - 46 | 109-116 | 34-38 | 86-96 | 22.5-24.8 | 57-63 |
| XL | 46 - 48 | 116-122 | 38-42 | 96-107 | 24.8-25.6 | 63-65 |
| XXL | 48 - 50 | 122-127 | 42-46 | 107-117 | | |
| XXXL | 50 - 52 | 127-132 | 46-50 | 117-127 | | |
| XXXXL | 52-53 | 132-135 | 50-53 | 127-137 | | |

TIPS WHEN BUYING BODY ARMOUR

Body armour has come a long way in meeting the needs of today's world. Most modern soft body armour manufacturers have reputable products. Here are some tips to ensure the armour is going to do what you need it to do.

1. Buy a certified solution

Always check a seller is compliant or certified to the necessary standard, ensuring they have testing data from an independent laboratory to prove the armour is fit for purpose. Body armour and ballistic products tested to the standards can often be just as good as those certified.

2. Never buy a used vest

In the body armour industry buying a pre-owned vest is risky. Body armour is made of materials that over time degrade and will degrade at different rates subject to environmental conditions and use. The vest will naturally lose its ballistic properties. Because it is difficult to know how a vest has been treated, what it has been subjected to, and what level of protection it is still able to protect the risk is enormous to the wearer, lives are put at risk every day to

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save on cost. Manufacturer's details are normally removed to ensure confidentiality removing any records of age, tracking numbers and protection. Check the description and if in doubt consult the vendor to ensure the vest and soft armour panels are brand new.

3. Are you insured?

Every body armour manufacturer or supplier should be able to provide a copy of their product liability insurance. This ensures that in the event the armour fails and causes serious injury that a claim can be made. It is important to ensure the insurance covers body armour, as PPE can just mean a baseball cap or high visibility jacket and not mean body armour.

4. Be sure of quality

Today, body armour is safer and lighter than ever. As this is designed to protect your life, you want to make sure it does the job. Cheaper prices do not always mean better value. With body armour you do get what you pay for. Lower prices can often mean a lower quality product which may not last the length of the guarantee period or have poor quality fixtures and fittings which could fail during a combat situation.

5. Like for like

In some situations, a lower price or weight can be reflected in the product received. Smaller internal panels or tapered reduced edge to edge protection can often leave the wearer under protected, or unaware they are not fully covered. It is important to ensure the products being compared are of the same size, coverage, and protection level to avoid disappointment.

YOUR BODY ARMOUR IS THE MOST IMPORTANT PART OF YOUR KIT. BE SAFE

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