

This is the third in a series of articles on bullet resistant vests by Deon du Plessis, MD of Bullet Proofing Technology (Pty) Ltd, in which he outlines the soft and hard materials which go into BRVs. His business manufactures a wide range of body armour plates and vehicle armour, and supplies a number of other bullet resistant vest manufacturers.

Balancing performance, function, comfort and cost

# As with everything, budget is the bottom line

Bullet Resistant Jacket is the generic term for a garment worn over the upper torso to protect it against bullets. Depending on each unique requirement, there are different types of jackets more or less suited to that specific need. The main factors influencing the correct choice are price, weight, comfort, protected area and specific requirements such as pockets, compatibility with other equipment and whether it can be visible.

Bullet Resistant Jackets (BRJ), Bullet Resistant Vests (BRV), Bulletproof Jackets (BPJ) and Bulletproof Vests (BPV) are seen and used by many as the same thing and are generic terms used for a garment that covers portions of the upper body against bullets. There are, however, many variables regarding the level of protection, area of coverage, comfort, protection level and price available, and in this article we will endeavour to provide clarification on most of these aspects. As the most commonly used term, we will refer to Bullet Resistant Vest (BRV) as the general term.

There are many different reasons for wearing a BRV. Many people in the security industry wear one all day as a working garment, while others wear one only occasionally for a specific reason. Some need it for personal protection and can afford to pay a lot for a lighter weight, while large security companies need to buy thousands at affordable prices. Some need to wear inconspicuous undercover jackets, while others might need very visible jackets with a lot of pockets and signage. For most requirements there are specific types of jacket available from which a user or procurement department can choose, and I will now expand on the most generally available types.

## 1. General purpose security BRV.

This generally consists of an outer, with or without additional pockets and signage, into which soft and flexible armour panels are inserted to provide protection against handgun threats. Most of these types of BRVs also have additional pockets into which hard armour plates can be inserted to increase the protection level to provide protection against rifle bullets. This is the type of BRV worn by the SAPS, SANDF, Correctional Services and most security companies. They are quite expensive as they provide dual-protection levels which can be upgraded from handgun level to rifle level when required, and the outer materials are quite durable, as these jackets are generally worn for extended periods and often full-time by security personnel and the SAPS. Buyers can expect to pay in excess of R5 000 for a BRV of this type with handgun level soft armour panels, and in excess of R1 500 per hard armour plate added to the jacket. This is the price to pay for possibly saving the life of a professional person who risks his or her life in the line of duty.

As with all BRVs, the price and weight of these jackets is heavily influenced by the amount of coverage and the protection level. Most of the BRVs used by the SAPS and serious security companies have large soft armour panels that wrap around most of the upper body, including the sides. Some products on the market are made to look similar to these jackets, but only have much smaller soft armour panels inside, which are much cheaper, but provide less protection. As the main cost of a BRV is the soft armour panels (Kevlar and other bullet resistant materials are very expensive), the cost of the jacket can be lowered considerably by using smaller armour panels, a trick well-used by some jacket manufacturers and suppliers. This is the most commonly used BRV as it provides a reasonable amount of protection, flexibility of application and comfort.

The weight of a typical size L jacket with Level II soft armour panels is 3,5kg, with the soft armour panels covering an area of 0,35m<sup>2</sup>. By adding 2 x Level III++ hard armour plates of 1kg each, the total jacket is still quite light at 5,5kg, but by adding lower-cost but heavier Level III++ plates of 2,8kg each, the total weight of the jacket increases to nearly 9kg, which is quite heavy for a garment which has to be worn all day. Most users therefore wear the jackets with soft armour all day, with or without "UltraLight" hard armour plates, and others, who have lower budgets, use heavier plates and only insert these plates when a Level III threat scenario is possible.



## 1. Plate Carrier

A Plate Carrier is the most basic form of Bullet Resistant Jacket or Vest, and mostly consists of only a front and back carrier pocket for hard armour plates. It provides a measure of bullet resistance protection to the upper body, but the protected area is generally quite small at 0,15 – 0,2m<sup>2</sup> per jacket. This is particularly relevant if they contain soft armour panels which are very small in comparison to full-wrap soft armour panels of 0,35m<sup>2</sup> per jacket. For the case of rifle protection, the protected area is however quite similar, as the plates in plate carriers are mostly similar in size to those used on other more advanced jackets.

Plate carriers are, however, also the lowest cost type of BRV and are ideally suited for users who have a very limited budget to spend on their protection or just want something to show that they at least trying to provide some protection to the wearers. This is particularly so if there is no soft armour in the pockets, and all the protection is only provided by hard armour plates known as “Stand Alone” plates, designed to provide the required protection on its own. This means that these jackets are quite affordable but are less flexible in their application in that they either provide no protection without the plates, or Level III rifle level protection at 3 – 10kg per jacket with the plates inserted. The lower weight “Ultralight S/A” plates being very light, but more expensive. It is very important to note that plate carriers without any Level II or IIIA soft armour installed, require the use of “Stand Alone” plates, and plates from ICW (In Conjunction With) vests cannot be used in these vests.

Just by-the-way: The sport or fitness discipline “Cross-Fit” sometimes uses plate carriers with ordinary mild-steel plates inside as weight to test the wearer’s strength/fitness. Please don’t confuse these plates with bullet resistant plates.

Most military BRVs are in fact not necessarily bullet resistant. As military threats are mostly either fragments and/or rifles, military BRVs mostly have soft armour panels with limited bullet resistance, but optimized protection against grenade and mortar fragments. Soldiers are often out on long physical patrols which means they cannot wear hard armour plates for extended periods. If they then need protection, it might be in a hurry, in which case they can merely don their plate carriers with S/A plates over their existing equipment and get instant protection against rifle fire.



## 1. Combat Jackets

Combat Jackets are more related to Military or Special Force operations and are very specialized. They generally have increased protection areas through the addition of fixed or removable panels to protect the neck, shoulders, groin and arms of the wearer. It does make the jackets less comfortable and heavier, but the personnel wearing them are generally professional soldiers or special forces, and they are trained to work with the jackets in this configuration and the heavier weight. The protection levels are generally also higher with Level IIIA for the soft armour and level IV for the hard armour plates, which also again make them heavier and more expensive.



## 1. Under Cover Vest

Under cover vests are worn when the wearer does not want the vest or jacket to be visible, eg. politicians, businessmen, chauffeurs, bodyguards and shopkeepers. As it is very difficult to hide a hard armour plate’s shape, these are mostly only handgun level with semi-wrap soft armour panels. To not be too visible, it is very important that these vests need to fit correctly and most are custom-made for the wearer.



1. Women's BRV

South Africa is one of the world leaders in providing BRVs specifically designed and shaped for women. The SAPS spent nearly 3 x years testing this and has been issuing these to female SAPS members for more than 10 x years already. Females generally have shorter torsos, requiring shorter jackets, and they find the pre-shaped front ballistic soft armour panels more comfortable, especially in the XS, S and M sizes. Because of their shorter torsos and narrower shoulders, the front hard armour plates in female-specific jackets are more curved and smaller at typically 210 x 260mm. The back hard armour plates are of the standard 250 x 300mm size and normal multi-curve (MC) or single curve (SC) shape. Other than these differences, most female jackets are based on the "General Purpose Vest" design as in #1 above.



1. Designer-wear or special bullet resistant Jackets

Sometimes it is necessary or required to wear BRVs disguised as other types or normal-wear jackets such as windbreakers, suits jackets and biker-jackets. There are some manufacturers specializing in this, but they are generally custom-made, very expensive and with a possible weak line in front where the jacket closes if there is not a reasonable amount of armour panel overlap. In general, these jackets cannot accommodate rifle level hard armour plates.



1. Farmer's Jacket

This is a recent development in South Africa and is spawned by the real threat of farm attacks and generally used on farm patrols. This seems to be a very price competitive category and many products sold as this are very basic jackets with only heavier steel-based hard armour plates or quite small Level II or IIIA handgun Level panels in them. It seems that everybody is looking very widely to source the cheapest products, which in most cases also means the smallest protection areas, heaviest and/or lower protection levels. The more comfortable and flexible materials used in BRVs are very expensive and lighter special materials also cost more, so by looking for the cheapest vests, clients mostly also get the older technologies, heavier armour and/or smallest protection areas.

There are, however, also some manufacturers offering special high-quality bullet resistant "Farmer's Jackets", but they do not fall in the category of cheapest jackets.

