

Not All 3-A Vests Are Created Equal

So many times we hear that, “3-A is 3-A” or “they are both 3-A vests one is cheaper so why should I buy the more expensive one”?

Its a common misconception that lumps all 3-A vests into one category by way of a pass fail test protocol, this was never really true, and is even less true now, as the new NIJ 0101.06 gives the buyer a lot more information about the vest if the manufacturer will give it to you by way of a simple request; they should at least show the Build of Materials (BOM) and the V-50 test results. With these documents you can draw some conclusions about weight and the V-50 numbers, plus you can see the low complete on the V-50 test results over 10 panels per caliber, not just 2 panels that's 100 shots Vs. 20 as compared to the NIJ 0101.04 standard.

Its true that all the vests that pass this test will stop the same rounds, but it's only two calibers in controlled conditions. Often this isn't the case in the field and different systems act differently to different threats. Finding a balanced system with high numbers is the key and that often costs more. Vests with lower V-50 numbers are subject to having a higher probability of a fluke penetration. The misconception is that when the NIJ 0101.04 test standard was still the requirement it was believed that stopping 24 shots of one caliber meant it was really a V-0, or at the specified velocity range of the 3-A projectiles there would be a 0% chance of penetration, but actually that's not the case, many manufacturers skirted the line or believed falsely that there system presented a true V-0 against the NIJ 3-A threat calibers.

True life example:

In the past my consulting work took me to building test ranges to create parity of the in-house range with the NIJ test laboratory so that R&D and lot testing could be performed internally with a high degree of confidence that is was similar testing to an accredited laboratory.

After completing the range we tested for an audience what was believed at the time to be a true V-0 system, the famed 100% woven aramid fabric vest touted by forums to be the best choice because of it's ability to manage contact shots significantly better than laminates. While there are problems with that line of thinking clearly some of the designs with laminates brought to market by the some of the larger corporations are/were suspect in this category. On this day we chose the 100% aramid fabric vest for the test demo and carefully calibrated the clay box, and then hoisted it on the new electric lift table. The ammo was loaded and “Boom” the 240 gr. JHP .44 magnum was launched down range and nearly instantaneously impacted the 100% aramid 3-A panel that weighed in at a purported 19.4 oz/Sq. Ft.. The velocity was 1447 Ft./Sec, a fair hit! I had seen hundreds of these events with no issues, just defeated bullets. On this day though when the panel was lifted away from the clay box there was a huge smoking hole about 3“ - 4” in diameter. I was dismayed, everyone's jaw had dropped. Speechless was the byword for the prevailing response. Factually this system had a small chance of penetration from a 3-A threat so small that you probably would never see one in multiple 24 shot sequence per caliber (9mm 124 gr. FMJ and the 240 gr. JHP .44 Magnum) that the NIJ 0101.04 standard required. Factually many of the NIJ 0101.04 3-A systems that passed secretly never possessed a true V-0.

The moral of the story is stay with the high V-50 numbers, you never know when the fluke will occur, the higher the V-50 number, the less of a chance of a situation illustrated above can happen. The NIJ 0101.06 test goes well beyond the NIJ 0101.04 test standard, instead of 12 panels being submitted there are 56 panels, 28 panels per caliber, and it produces data that clearly shows that not all 3-A vests systems are created equal, they never were but now the consumer can judge this fact independently.

The Quantum KXP 3-A was thoroughly tested against fragmentation (17 gr. Frag simulator) The vest passed the interim 2005 standard in January of 2009, and after it passed against penetration and back face signature testing in the V-0 velocity range (1430 +/- 30 ft./Sec) two 9mm V-50's were performed, one 17 Gr. frag V-50, and a 9mm SXT 127 Gr. +P+ V-50 were also performed. The results illustrate exactly what we mean by choosing armor with high numbers.

1.03 Lbs/Sq. Ft.

9mm 124 Gr. FMJ **V-50 1901 Ft./Sec.** average of two panels

9mm SXT 127 Gr. +P+ V-50 1651 Ft./Sec

17 Gr. Frag V-50 2016 Ft./Sec.

On one set of projectiles the numbers are high, but add the tough 9mm SXT to the range and you see a lower but acceptable number. Many laminate vests have lower numbers against that threat, but since they were never required to be tested against that threat you never see the big drop in velocity, and hence it further illustrates why you want your V-50 numbers to be high on traditional NIJ test rounds, 9mm/.44 magnum. The 100% aramid vest has it's achilles heal as well, they are poor performers on simultaneous impacts, close quarter shots, and hard cased rounds, but this is where laminates excel.

If you compare the 100% woven Aramid vest to the one described above you will find the following as a comparison:

1.24 Lbs/Sq. Ft. **20% heavier than the above system**

9mm 124 Gr. FMF V-50 1674 Ft./Sec ~ **Much Lower V-50**

.44 Mag V-50 approximately low 1600's ~ NA

17 Gr. Frag V-50 approximately 1950 - 2010 Ft./Sec ~ Similar

These numbers are good enough to pass, but they are a lot closer to the high V-0 numbers, and although a 30 layer ballistic package using 100% 840 denier 26 x 26 Aramid woven fabric is considered a very consistent and safe system, it does not present a true V-0 against the .44 magnum at 1430 +/- 30 Ft./Sec. There are many systems out there that have issues with rounds other than what was tested during the NIJ certification test. In fact too many to discuss.

We are currently revising the Quantum KXP 3-A to meet the NIJ 0101.06 test standard, and we call it the QCSquared 3-A, it's current disposition is pre certification, but has already posted an 1852 Ft./sec V-50 against the .357 Sig FMC projectile, and has consistently meet the back face signature requirements panel after panel. We made many revisions to address the worst case scenario. This systems has more Kevlar XP so the contact shot threat is better mitigated, and also surpasses the 2000 Ft./Sec mark the military requires for frag V-50 performance. This system weighs in at 1.11 Lbs/Sq. Ft., so it's still light weight. We look forward to keeping all of our customers updated as the progress continues towards passing the tough and expensive NIJ 0101.06 standard.

If you want to compare BOM's from different manufactures before you make your decision contact us, and we'll show you how to do, because now you can compare apples to apples before you purchase.

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