

SPECIFICATIONS

For Purchase of Soft Body Armor NIJ 0101.06 Level II

1. SCOPE

This product specification details the style and quality of concealable soft body armor vests intended for use by male or female members of this agency. The vests shall be worn comfortably while being concealed under a shirt. All vests shall provide protection against labeled projectile penetration while reducing resultant blunt trauma and vest distortion to acceptable levels. The successful vendor shall be required to supply the individual vests with applicable options and colors as ordered for male or female personnel.

Only body armor models, which have been tested by the National Institute of Justice (NIJ) National Law Enforcement & Corrections Technology Center (NLECTC), and found to comply with NIJ Standard 0101.06 Ballistic Resistance of Body Armor for Type II armor, shall be submitted under this specification. No exceptions.

2. APPLICABLE DOCUMENTS

The following list of standards and specifications in effect on the date of this solicitation shall form a part of this specification.

1. National Institute of Justice, Standard NIJ-STD-0101.06, Ballistic Resistance of Body Armor.
2. MIL-STD-662F, V50 Ballistic Test for Armor
3. ASTM D 6193, Standard Practices for Stitches and Seams.
4. ANSI/ISO/ ASQ Q9001-2008 Certification

Requirements of this specification shall take precedence over the above referenced standards and specifications.

3. DESIGN REQUIREMENTS

The intended use of the soft body armor detailed herein is intended to be standard issue armor. It is intended for routine daily wear as an undergarment.

The soft body armor shall be designed to provide:

1. Light and thin NIJ certified armor in Level II
2. A high degree of concealment and comfort.
3. Minimum restriction of motion or mobility.
4. Optional carriers to allow for laundering and color changes.
5. Provide resistance against the labeled projectiles in accordance with the NIJ Standard 0101.06.

4. GENERAL DESIGN

The ballistic panels of soft body armor meeting this specification shall provide thin, flexible, lightweight comfort utilizing high performance ballistic materials. The soft body armor shall be designed for regular daily wear as an undergarment. Therefore, vests shall be designed and constructed to provide (1) light and thin NIJ certified armor in Level II, (2) durability, (3) ease of cleaning, (4) minimum restriction of motion or mobility, and (5) the greatest amount of ballistic coverage consistent with comfort and concealment.

The general configuration shall be the slipover vest type that covers the majority of the upper torso, including side coverage. Two removable/replaceable Breathe-O-Prene® shoulder straps and four removable/replaceable elastic waist straps with hook and pile fasteners shall provide proper positioning and comfort. The entire vest perimeter shall be curved. No sharp corners or straight edges shall be allowed.

The front ballistic panel shall cover the chest approximately up to the collar bone, have a scooped neck sufficient to maintain concealability when wearing an open collar shirt, extend downward to the waist but not far enough to "push up into the throat" when the wearer is seated, and extend around the sides to provide side protection. The biceps/chest region shall be cut with sufficient space to minimize irritation and restriction of arm movement during common duties such as the operation of motor vehicles. The outer shell carriers shall include front and rear 5" x 8" / 8" x 10" combination plate pockets designed to accommodate trauma, ballistic or blade inserts.

The rear ballistic panel shall cover the back of the torso from just above the shoulder blades down to a position above the waist belt. In addition, unless otherwise stated, the maximum gap at each side shall be two inches.

Female models shall be designed specifically for the female torso and shall have allowances for bust configuration.

Panels shall be equipped with an integral self suspending ballistic system (SSBS). The SSBS must provide direct support to the ballistic panels to keep them sagging and creasing at the bottom of the carrier.

Each piece of soft body armor shall include the following:

1. One (1) set of ballistic panels.
2. Integral Self Suspending Ballistic System (SSBS).
3. One (1) set removable/replaceable 12 point VersaStrap™ Breath-O-Prene straps.
4. One (1) complete washable Carrier System with **ThorShield™** EMD, TASER® device resistant technology.
5. Front and Rear 5" x 8" / 8" x 10" Combo pockets.
6. One (1) trauma reduction insert.

5. STANDARD FEATURES

1. Self Suspending Ballistic System (SSBS).
2. Bottom loading Blue Steel outer carrier.
3. Smart Fabric Technology™ (SFT) carrier lining.
4. Versa Strap™ 12 point removable and replaceable strapping system.
5. Wik-Away front and rear shirt tails.
6. Front and Rear 5" x 8" / 8" x 10" Combo pockets.

6. ADDITIONAL REQUIRED FEATURES

1. Additional washable SFT™ outer carrier with **ThorShield™** EMD, TASER® device resistant technology.
2. Additional removable/replaceable 12 point VersaStrap™ strap set.
3. Quilted MPC outer carrier(Tactical, EMS, Firearms Instructor) with **ThorShield™** EMD, TASER® device resistant technology.
4. Blades Plate Insert.
5. Special Threats (STP) plates.
6. Active Cooling Inserts.

7. BALLISTIC PANEL MATERIALS

All materials shall be new, unused and without flaws that affect appearance, durability and function. The ballistic panels shall be constructed of a matrix of Woven Para-Aramid fabric and Polyethylene UD. No other ballistic material shall be used.

8. PANEL CONSTRUCTION

All vests, which are submitted, shall represent armor, which in layer count, is uniform throughout the ballistic panel. Accordingly, any ballistic panel, which is not uniform, in layer count, throughout the entire ballistic package, shall be rejected. A vest section of 12" x 12" (one square foot), must not exceed 12.32 oz. / .77 lbs per square foot for NIJ level II. Sample weights are (+/- 5%).

9. BALLISTIC PANEL PERFORMANCE

V50 Performance

Each bidder shall submit V50 test reports for the vest being offered. The V50 test shall be performed in accordance with MIL-STD-662F using NIJ Standard 0101.06 test projectiles. The test must be performed by an independent laboratory approved by the National Institute of Justice (NIJ) National Law Enforcement & Corrections Technology Center (NLECTC) for testing in accordance with NIJ Standard 0101.06. The V 50 test shall be against clay backing. V 50 reports, which represent testing without clay backing, shall be rejected. Vendor shall provide written certification that all V 50 testing is accomplished with clay backing; Test reports submitted by the bidder shall reflect the following minimum test results for a 12.32 oz. / .77 lbs per square foot test sample. Sample weights are (+/- 5%). Blunt trauma reduction is also an important aspect of armor design. Low back face signature (BFS) should result in reduced blunt trauma injury.

	<u>9mm Average Panel 1&2</u>
V50 (fps) New Armor	Min. 1600

10. LABELING

Label material shall withstand normal wear and cleaning and remain readable during the entire warranted life of the armor or carrier.

All soft body armor shall be labeled in strict adherence to the labeling requirement set forth in NIJ Standard 0101.06 Requirements. The ballistic panel labeling shall include, but not be limited to the following:

1. Name of Manufacture
2. Level of Protection
3. NIJ 0101.06
4. Date of Manufacture
5. Date Issue
6. Size
7. Serial Number
8. Model of Vest
9. Manufacture Location
10. Care Instructions.
11. Warranty Period

11. BALLISTIC PANEL COVER MATERIAL

The ballistic cover material must be sealed by a sonic welding process to prevent moisture intrusion at the seams. Only armor systems that incorporate a Ballistic Panel Barrier System will be considered. The Barrier System must exhibit a high degree of water repellency and resistance to MVT. The Barrier System will have a water repellent treatment on its exposed surface that resists moisture and staining. In addition, the Barrier System will incorporate a Nano-Technology, Anti-Microbial/Anti-Fungal treatment that inhibits the growth of mold and bacteria. The interior of the Barrier System will incorporate an all weather film laminate technology to further enhance resistance to moisture migration and MVT.

Characteristic	Requirement	Test Method
Determination of resistance to water	> 10,000	ISO-811

penetration - Hydrostatic pressure test (mm)		
Water Vapor Transmission (gms/sq mtr / 24 hrs)	< 550	ASTM E96 D (inverted)
Wet-flex after 24 hours	No delamination	BWW -24H
Resistance to water penetration after exposure to diesel fuel (psi)	>90 <u>1/</u>	ASTM D751
Resistance to water penetration after exposure to sea water (psi)	>100 <u>1/</u>	ASTM D751
Resistance to water penetration after exposure to alcohol (psi)	>100 <u>1/</u>	ASTM D751

*** Each fabric shall be completely submerged in particular fluid for a period of 24 hours and line-dried.*

12. VEST OUTER CARRIER MATERIAL

Removable Carrier-

The machine washable carrier shall be removable from the ballistic panels for laundering. The carrier systems body side fabric shall consist of smooth fit SFT™ micro-fiber with Nano Technology micro-encapsulated phase change temperature regulation and Anti-Microbial bacteria, mold and mildew deterrent. To eliminate uncomfortable body side seams and bulges, there shall be no zippers or hook & loop closures against the body. The UBL exterior of the outer-shell will utilize a bottom horizontal zipper for improved insertion and removal of the ballistic panel. The interior of the carrier at the shoulders shall have attachment points made of low profile loop to allow for internal suspension of the ballistic panel via tabs of hook. This enables the wearer to utilize separate external shoulder straps. In addition, the carrier shall be designed so that it can accommodate the Self Suspending Ballistic System (SSBS). **No substitutes will be accepted.** Carrier shall be manufactured from a dimensionally stable first quality material with less than 5% shrinkage. The outer side of the carrier shall be manufactured from first quality Super-Suede Micro-Fiber, and have a Soil Resistant Finish (SRF). All fabrics shall have no visible fabric or color flaws.

13. QUALITY CONTROL

The manufacturer must maintain an ANSI/ISO/ ASQ Q9001-2008 Certification quality program. The documented quality control system must be designed to insure the integrity and quality of the manufactured products. The quality control system shall control all manufacturing process and incoming raw materials. The manufacturer must have an in-house ballistic laboratory capable of performing ballistic testing of incoming raw materials and in-process samples. The manufacturer must have the capability of performing testing in accordance with MIL-STD-662F and NIJ Standard 0101.06. Procedures for lot testing of incoming raw materials and in-process samples must be incorporated into the quality control system.

All incoming ballistic material shall undergo V50 ballistic lot tests in accordance with MIL-STD-662F with exception of using a clay backing conditioned in accordance with the requirements of NIJ 0101.06.

Every vest panel manufactured shall be inspected for material defects, proper ply counts, and for proper ballistic panel stitching. Covers and accessories shall be re-inspected during manufacturing for defects at selected points during manufacturing to assure the absence of hidden defects in the final item.

In addition, each vest shall receive a final inspection prior to shipment. This inspection shall include a review of the quality control check sheet and confirm the product against the customer's order.

14. SERIAL NUMBERS

Each unit of soft body armor delivered shall have an individual serial number. Each soft body armor vest shall be traceable to its original ballistic material lot number and ballistic material mill roll number. Additionally the soft body armor serial number shall be traceable to an incoming material lot test and ballistic panel lay-up lot test.

15. LOT TESTING

All incoming ballistic material shall undergo V50 ballistic lot test in accordance with MIL-STD-662F except that the test will be conducted on clay backing which meets the requirements of NIJ Standard 0101.06 for backing material.

16. MEASUREMENTS AND FITTING:

Custom Measuring

Unless otherwise stated, individual measurements will be taken of each user. Each delivered vest shall fit in accordance with the following guidelines:

1. The side edges of the front and back ballistic panels shall be fit for within a two-inch (2") gap between panels during the initial custom fitting.
2. The bottom edge of the front ballistic panel shall be within one-inch (1") of the highest waist belt (usually the duty belt) measurement when the wearer is in a relaxed seated position.
3. The bottom edge of the back panel shall be within one-inch (1") of the highest waist belt (usually the duty belt) measurement when the wearer is in the standing position.

Female sizes are determined based on individual measurements, including bust size.

17. FIT AND ALTERATION POLICY

The manufacturer shall perform all required alterations of more than one inch within 30 days after original shipment of the product at no charge. Adjustments of an inch or less than an inch can be accomplished by utilizing the adjustable strap feature on the vest.

18. PRODUCT LIABILITY INSURANCE

Vest manufacturer shall agree to provide a minimum of \$26,000,000 product liability insurance coverage on delivered vests.

19. GUARANTEE/ WARRANTY

Any armor exhibiting defects during the warranty period shall be replaced without cost, including freight, by the bidder and/or manufacturer.

Ballistic Panels:

The manufacturer shall certify that all ballistic panels of an armor unit are warranted for at least five (5) years from the date of delivery.

Garments or Carriers:

The carriers or garments shall be warranted for at least twenty-four (24) months. Bidders whose warranty is less than 24 months will be rejected.

Failure to submit any of the above items with the bid shall be just cause for rejection of the bid.

20. PACKAGING

Plastic Bags:

Each set of armor shall be packaged in a suitable sealed plastic bag. Each bag should have the officer's name clearly marked for identification.

Shipping Cartons and Packing Slips:

The shipping carton shall have no voids or slack space that will allow crushing or distortion from stacking. Each shipping carton shall contain a packing slip bearing the manufacturer's name, commodity, quantity, lot number, and serial numbers. The packing slip shall be easily identifiable and readily available. The carton shall be suitably marked to facilitate locating the slip.

21. DOCUMENTATION

The following documents, certifications, and test-reports should be included with the vendor's bid.

1. Models must be clearly identified and shall include the following:
 - a. Full product description.
 - b. Technical specifications.

2. Manufacturers must have to how measuring, alterations and customer service will be maintained without local distribution.
3. NIJ 0101.06.Certification and test reports from an accredited laboratory for the vest being certified.
4. V50 test reports performed in accordance with MIL-STD-662F. V50 testing must be accomplished with clay backing. V50 test reports must be submitted for the ballistic package for both NIJ calibers for that class.
5. Proof of product Liability Insurance providing a minimum coverage of \$26,000,000.
6. Documentation stating the coverage and limitations of the 5-year ballistic package warranty.
7. Documentation stating the coverage and limitations of the 24-month outer-shell cover warranty.