



# NATIONAL INSTITUTE OF JUSTICE

## BODY ARMOR SELECTION, CARE, AND MAINTENANCE



### Firearms continue to be one of the most dangerous threats faced by law enforcement officers in the United States.

- Statistics from the Federal Bureau of Investigation's Law Enforcement Officers Killed and Assaulted Program show that from 1987 through 2015, more than 70,000 officers have been assaulted by firearms and more than 1,700 have been feloniously killed by firearms.
- During the past three decades, however, ballistic-resistant body armor has saved the lives of more than 3,000 police officers.

### Body armor is critical safety equipment that law enforcement and corrections officers need for personal protection.

- Recent research funded by the National Institute of Justice (NIJ) indicates that law enforcement agencies with 100 or more officers have increased their use of mandatory body armor wear policies, from 58 percent of agencies in 2007 to 78 percent in 2013.

- This observed increase in body armor wear by the law enforcement community is important, as safeguarding officers from harm is critical.
- A better understanding of the selection, care, and maintenance of body armor can ensure that officers know how to choose the right body armor for the job, how to determine whether body armor fits properly, and how to inspect their body armor and detect any issues that need attention.

### Body armor is a ballistic-resistant vest that is made up of a carrier and soft armor panels or hard armor plates.

- NIJ encourages law enforcement agencies to select body armor that their officers will wear and that is consistent with their ballistic protection requirements.
- Agencies should ensure that each officer knows and understands the protection that the armor affords, as well as its limitations.

### NIJ certifies models of armor panels and armor plates that meet the requirements of the NIJ Compliance Testing Program.

- Models that meet NIJ ballistic-resistance performance requirements can be found on the Compliant Products List (CPL) at [www.policearmor.org](http://www.policearmor.org) (under “Compliant Products—CPL”).
- The model designation is the name or alphanumeric code that is used to uniquely identify a particular model on the CPL.
- NIJ urges agencies to select armor models listed on the CPL, as these products have been tested to NIJ Standard 0101.06, the current ballistic-resistant body armor standard, by accredited third-party laboratories designated by NIJ.
- The products undergo follow-up inspection testing as well.

### Ballistic-resistant vests may be marketed and sold under various recognizable trade names or product names that contain different panels or plates in a variety of carriers.

- A carrier may accept a variety of armor panels or plates that have NIJ model designations on the CPL; however, the label on the armor panel should state the NIJ model designation so a user can refer to the CPL.
- Agencies are urged to research vests prior to making a purchasing decision to confirm which listed armor panels or armor plates are in the vest, and to learn about the features of the carriers.

### NIJ urges proper attention to those factors that affect the wearability of armor in order to encourage routine, full-time use by all on-duty officers.

- Features of the carrier vary among manufacturers, and preferences vary among individual officers.
- Agencies are encouraged to compare products to ensure the ballistic-resistant vest contains armor models listed on the CPL and that the carrier meets the needs of the law enforcement officers who wear this equipment.

- Officers or agencies may have preferences regarding design features offered with body armor, including but not limited to:
  - **Weight** — Heavy body armor could increase the amount of fatigue an officer experiences during his or her shift.
  - **Thickness** — Thickness and material type are closely tied to the weight of body armor. Thicker armors may trap more heat against the body and may be stiffer.
  - **Covert carrier versus overt carrier** — Some agencies prefer body armor to be worn under the duty uniform, whereas others prefer it to be worn over their duty uniform. The choice is a matter of agency policy.
  - **Fastener type** — Either zipper or hook-and-loop closures may be preferred. There is no difference in ballistic performance; however, operating environment, personal preference, ease of fastening, and noise may all be considerations. The fastener should provide for adequate overlap to prevent loss of coverage.
  - **Other features** — Pockets, cargo loops, and other features may assist an officer in the execution of his or her duties.

### It is important to ensure that officers have body armor that fits properly.

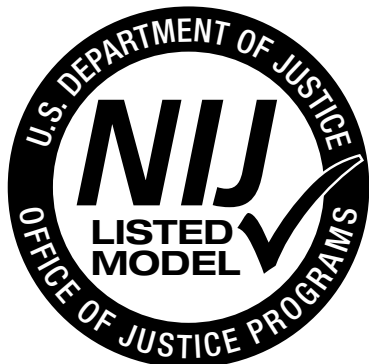
- Working with ASTM International, NIJ led the development of ASTM E3003-15, *Standard Practice for Body Armor Wearer Measurement and Fitting of Armor*, at [www.astm.org/NIJ/BodyArmorFit](http://www.astm.org/NIJ/BodyArmorFit).
- The standard contains information on proper measurement and fit, as well as a worksheet that an officer can use to perform an assessment of his or her body armor fit.
- This standard increases consistency in how measurements are taken by providing guidance to help officers and agencies properly fit ballistic-resistant body armor and stab-resistant body armor covering the torso.

### Differences in the services that suppliers offer to support a particular model should also be considered.

- These may include fitting and measurement, training, adjustments, repairs, and warranties.
- Warranties for ballistic performance and workmanship are required of ballistic-resistant body armor models listed on the CPL.
- Armor panels and carriers may have different warranty periods and different warranty conditions.
- Agencies are encouraged to research the impact that warranties may have on body armor maintenance and replacement cycles.

### Agencies that plan to purchase NIJ-compliant armor should not accept statements, written in the bid or stated verbally by a salesperson, that the model shown is “just like” or “identical to” a model from the NIJ CPL or “meets the NIJ standard.”

- Only armor that is listed on the CPL is NIJ-compliant.
- Armor that is not listed on the CPL does not qualify for Bureau of Justice Assistance funding through either the Bulletproof Vest Program or Justice Assistance Grant Program.
- Agencies should look for the “NIJ mark” on the labels of their armor panels, a visual identifier that only NIJ-compliant armor listed on the CPL bears, as shown below.



### Law enforcement officers have demanding jobs, and some wear and tear on a ballistic-resistant vest is expected.

- Frequent inspections and proper care of body armor help maintain the integrity of the ballistic panels and the carrier.
- Every model of body armor that complies with NIJ Standard 0101.06 is required to have supplier-recommended care instructions on the label.
- It is important to follow the supplier-recommended care instructions, making certain that anyone else who cares for the armor is also aware of these instructions.

### Visually inspect ballistic panel covers frequently.

- Check for cuts, tears, stitching separation, sealing problems, and excessive wear — all of which could expose the ballistic-resistant materials to moisture and other potentially degrading factors.
- Carriers that rub the panel covers as a result of normal flexing can wear through the cover and expose the armor to moisture penetration.

### Note that the covers of the armor panels should not be opened for any reason.

- If the integrity of the panel cover is compromised in any way, notify someone right away.
- For example, report these findings to an agency representative who should contact the armor supplier for guidance on how to proceed.
- Never attempt to repair armor panels under any circumstances.
- Agencies should consider replacing, or returning to the manufacturer for repair, any armor panel or label that shows damage or excessive wear as soon as possible.

For more information on the selection, care, and maintenance of body armor, please visit [www.policearmor.org](http://www.policearmor.org) or read NIJ's *Selection & Application Guide 0101.06 to Ballistic-Resistant Body Armor* at [www.ncjrs.gov/pdffiles1/nij/247281.pdf](http://www.ncjrs.gov/pdffiles1/nij/247281.pdf).

# NATIONAL INSTITUTE OF JUSTICE

## STRENGTHEN SCIENCE. ADVANCE JUSTICE.



## WHAT WE DO



### LISTEN

Improving our ability to understand and respond to crime and justice challenges begins with listening to the field. NIJ regularly engages with criminal justice researchers and professionals to learn from their unique expertise and gather information on what knowledge and tools are necessary to reduce crime and advance justice. This process guides our research investments.

**Learn more about these activities:**  
[NIJ.ojp.gov/listen](http://NIJ.ojp.gov/listen)



### LEARN

We invest in research across scientific disciplines, including the social and behavioral sciences, physical sciences, engineering, and technology, to provide evidence-based knowledge to strengthen the justice system. Researchers, students, and justice professionals have the opportunity to apply for research and development funding through NIJ solicitations, fellowships, and challenges.

**Learn more about these activities:**  
[NIJ.ojp.gov/learn](http://NIJ.ojp.gov/learn)



### INFORM

NIJ's scientific investments inform the national conversation on issues of criminal justice and public safety. Evidence-based knowledge can lead to more effective justice policy and practice, new technology and scientific techniques, and responses to emerging justice challenges. We are committed to providing the criminal justice community with the knowledge and tools necessary to reduce crime and advance justice.

**Learn more about these activities:**  
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## OUR MISSION

We are dedicated to improving knowledge and understanding of crime and justice issues through science. NIJ provides objective and independent knowledge and tools to inform the decision-making of the criminal justice community to reduce crime and advance justice, particularly at the state and local levels.

## IMPORTANCE OF SCIENCE

NIJ is committed to supporting the development of rigorous and independent research that crosses scientific disciplines and leverages the expertise of both researchers and those working within the criminal justice system. Investments in science allow us to better understand the challenges facing the U.S. criminal justice system and to develop and test effective solutions.

## CONNECT WITH US



Keep up to date with the variety of evidence-based resources and research funding opportunities that NIJ has to offer criminal justice researchers, students, and professionals.

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