

DIAMONDS & DERRINGERS



PRESENTS:

ARMOR





Question:

Why on Earth would
I need armor?

Answer:

Wonder Woman
wears armor.



ARMOR

Now that we've got that settled, let's talk armor.

The first thing to understand is how the stopping power is rated.

NIJ Standards* testing procedures predominantly determine this.

*National Institute of Justice



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BALLISTIC RATING STANDARDS

NIJ Standard 0101.06	
Level IIIA	Stops Pistol Rounds up to .44 Magnum
Level III	Stops Rifle Rounds up to .308(M80 Ball), Excluding M855 Green Tip
Level IV	Stops Rifle Rounds up to .30-06 M2 Armor Piercing
Additions In Proposed NIJ Standard 0101.07	
NIJ RF2 (III+)	Stops rifle rounds up to .308(M80 Ball), Including M855 Green Tip



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BALLISTIC RATING STANDARDS

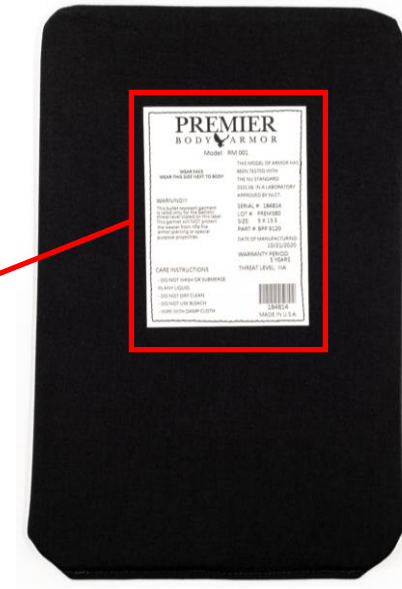
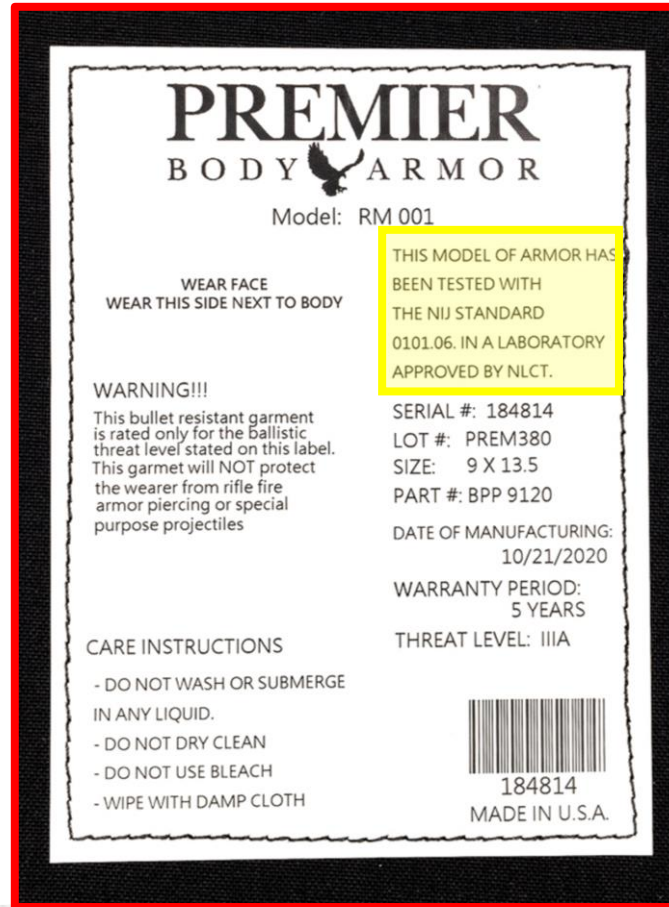
Here is another way of looking at it:



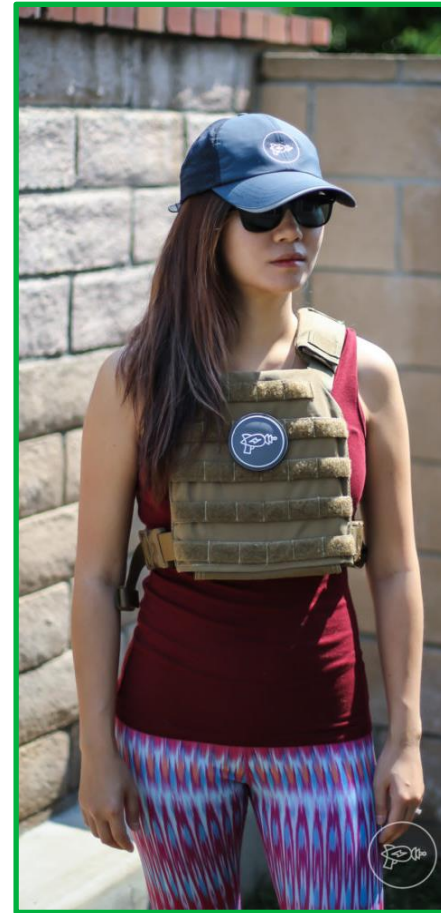
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BALLISTIC RATING STANDARDS

HOW TO KNOW IF YOUR ARMOR IS NIJ STANDARD TESTED



SOFT VS HARD ARMOR



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SOFT ARMOR



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SOFT ARMOR



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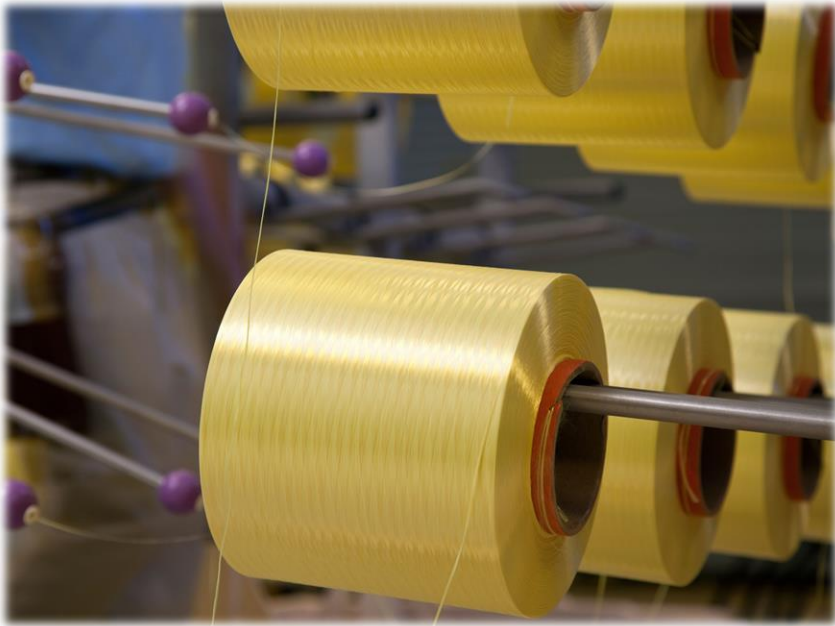


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SOFT ARMOR

Typically constructed of a fabric material such as Kevlar.



SOFT ARMOR

Pros:

- Can offer protection to the majority of your torso due to its ability to wrap around you.
- Can be concealable and often comfortable to wear.
- Thin and light weight.
- Can be “custom fitted” to suit an individual’s body type.
- Is available in both vest and panel configurations.



SOFT ARMOR

Cons:

- Typically, only rated to stop handgun projectiles at Level II or IIIA.
- Often susceptible to penetration by slower moving, sharp objects such as a knife.



SOFT ARMOR



Available in the
following
configurations:

VESTS

PANELS



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SOFT ARMOR

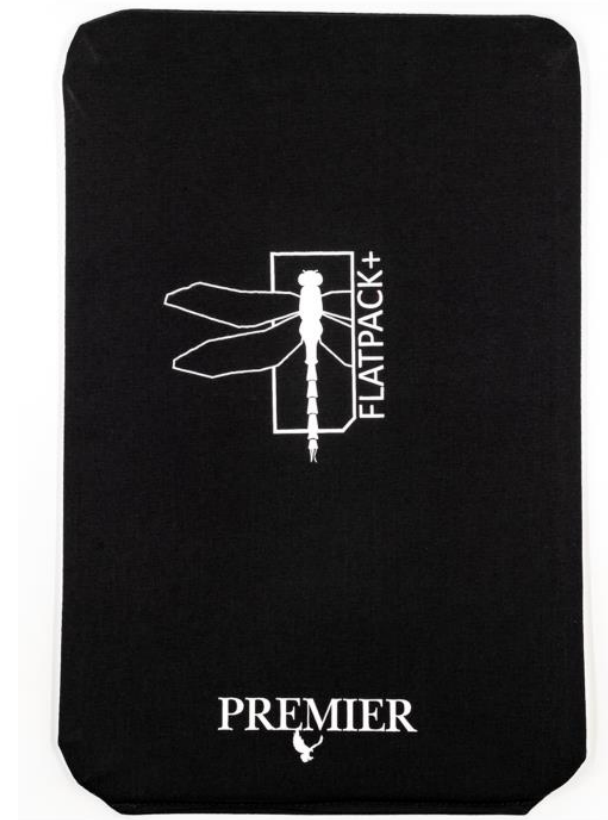
VESTS can be customized or fitted to better match your individual body type.



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SOFT ARMOR

PANELS are offered in a multitude of shapes and sizes, making them ideal for placement within backpacks, computer bags, etc.



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SOFT ARMOR

MALE VS. FEMALE VEST COMPARISON

*Model is wearing same size vest in each picture

FEMALE VEST

MALE VEST

Snug and
flat shoulder fit

Loose and
buckled shoulder
fit

Curved and
supportive
chest fit

Tight Uncomfortable
Chest fit

Fitted and even
waist fit to
print shifting
while sitting

Loose and low
waist fit, vest
shifts when
wearer sits



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HARD ARMOR (PLATES)



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HARD ARMOR (PLATES)



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HARD ARMOR (PLATES)

NOTE:

“STANDALONE” rated plates are preferable.

Plates without a standalone rating require an additional trauma plate or soft armor type backing in order to adequately perform.



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HARD ARMOR (PLATES)

Pros:

- Capable of stopping both handgun and rifle projectiles.
- Depending on the rating level, may even stop armor piercing projectiles.
- Can stop slow moving sharp objects such as knives.



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HARD ARMOR (PLATES)

Cons:

- Thicker and heavier than soft armor.
- More difficult to conceal than soft armor.
- Typically, only broadly sized in small, medium and large plate sizes.
- Offers protection to a limited area of your torso.



HARD ARMOR (PLATES)

What does armor piercing ammunition do to most plates?



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HARD ARMOR (PLATES)

NOTE:

Hard armor plates require a plate carrier to house them.

Carriers will be discussed later in the presentation.



HARD ARMOR (PLATES)

Plates are constructed of rigid materials including: steel, polyethylene, ceramic, or a combination of layered materials.



STEEL



POLY



CERAMIC



HARD ARMOR (PLATES)

Let's discuss the pros and cons of each plate material type.



HARD ARMOR (PLATES)

STEEL

Pros:

- Affordable
- Durable
- Multi-hit capable
- Edge to edge protection
- Low backface deformation



Cons:

- Heavy (5-10 lbs. ea.)
- Risk of projectile spalling



HARD ARMOR (PLATES)

STEEL



LIVE FIRE TESTING RESULTS



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HARD ARMOR (PLATES)

UHMWPE (ultra-high molecular weight polyethylene)

Pros:

- Durable (can be dropped)
- Lightest weight (1-3 lbs.)
- Multi-hit capable
- Positively buoyant
- Limited spalling
- Does not crumble on impact



Cons:

- Limited edge protection
- Thicker than steel or poly limiting carrier options*
- Extreme temperature sensitivity
- Potential backface deformation

*Most carriers accommodate up to 1" plate thickness



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HARD ARMOR (PLATES)

UHMWPE / POLY



LIVE FIRE TESTING RESULTS



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HARD ARMOR (PLATES)

CERAMIC

Pros:

- Low backface deformation
- Light weight (4-5 lbs.)
- Thinner than poly / fits in majority of plate carriers



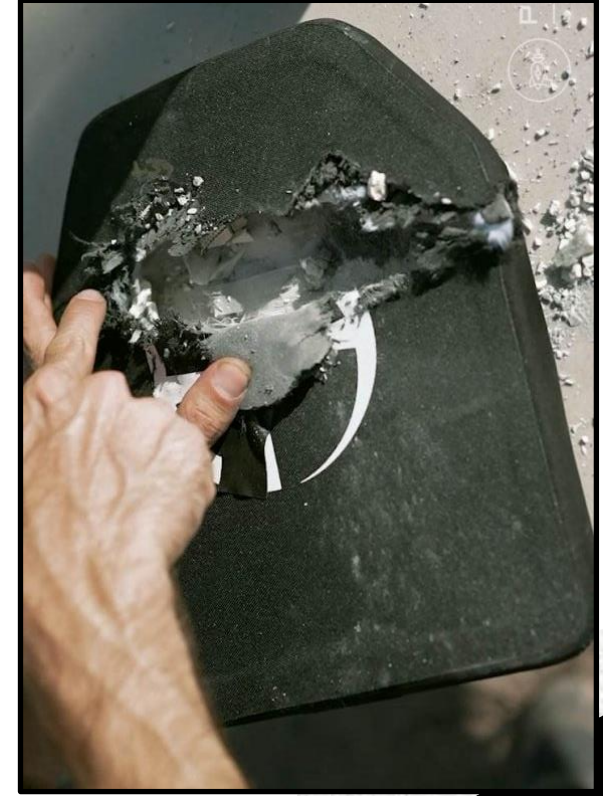
Cons:

- Limited edge protection
- Limited multi-hit capable
- Brittle nature of ceramic means more susceptible to damage
- Ceramic spalling



HARD ARMOR (PLATES)

CERAMIC



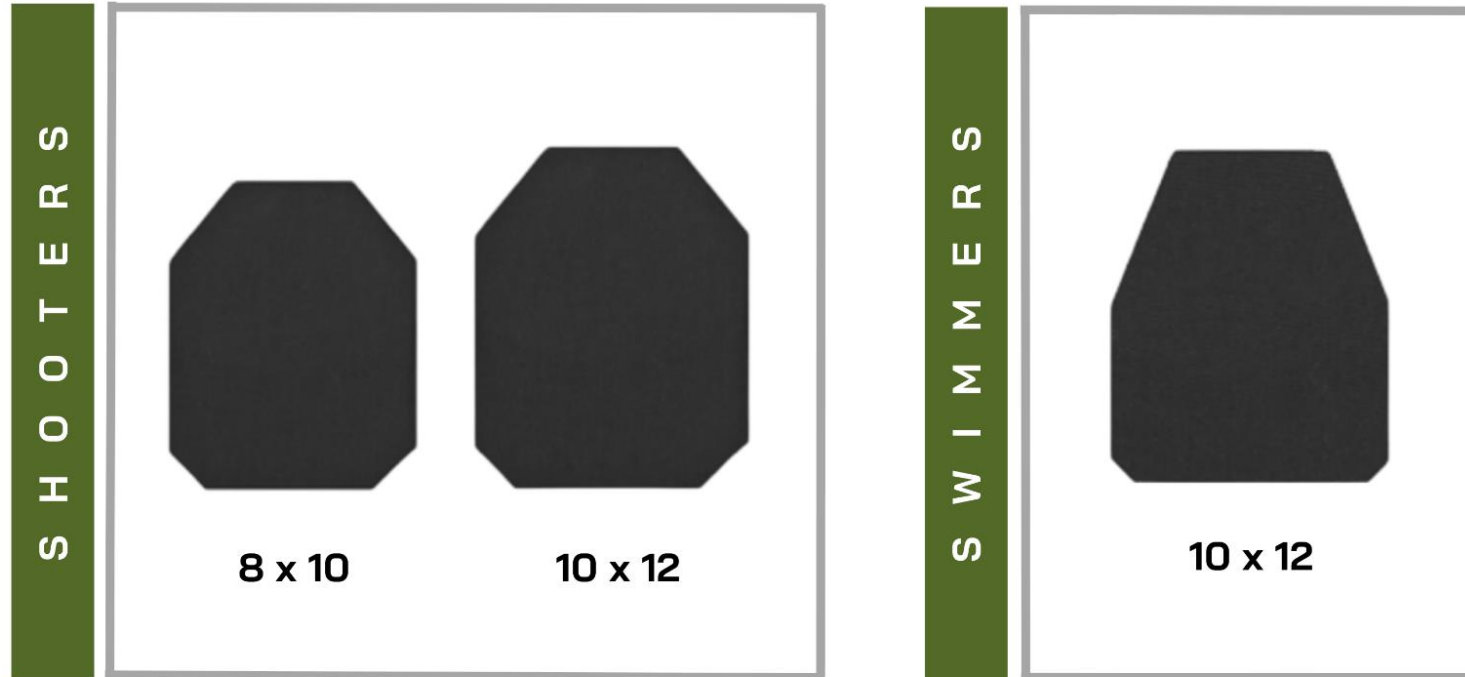
LIVE FIRE TESTING RESULTS



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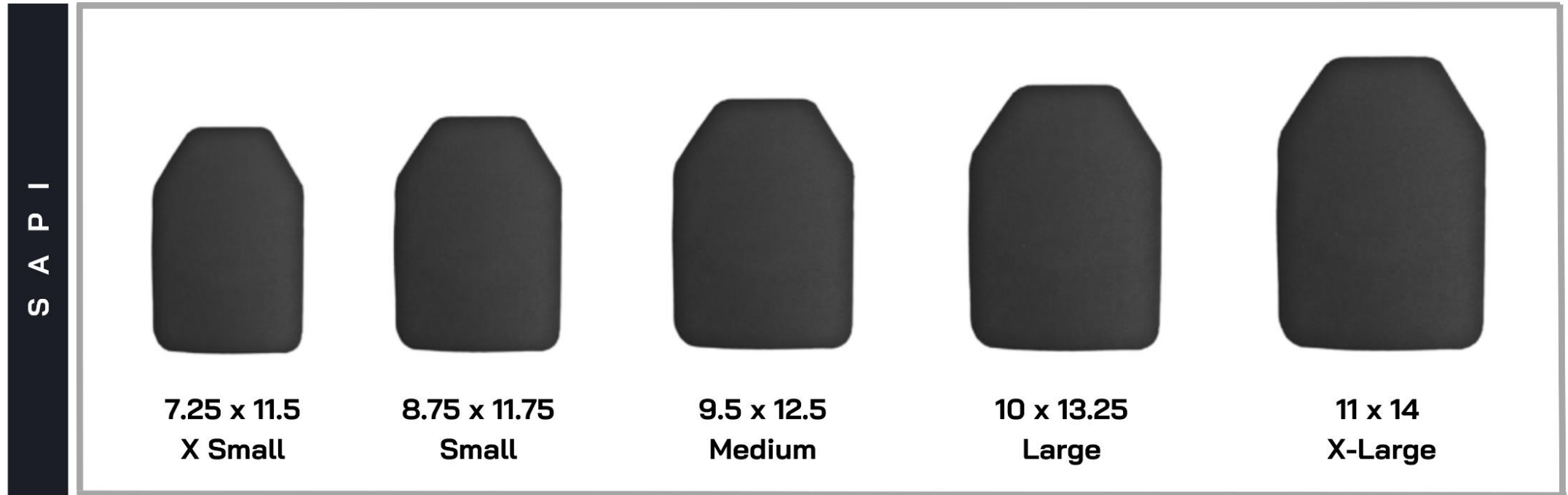
HARD ARMOR (PLATES)

Plates are manufactured in a variety of shapes (cuts) and sizes:



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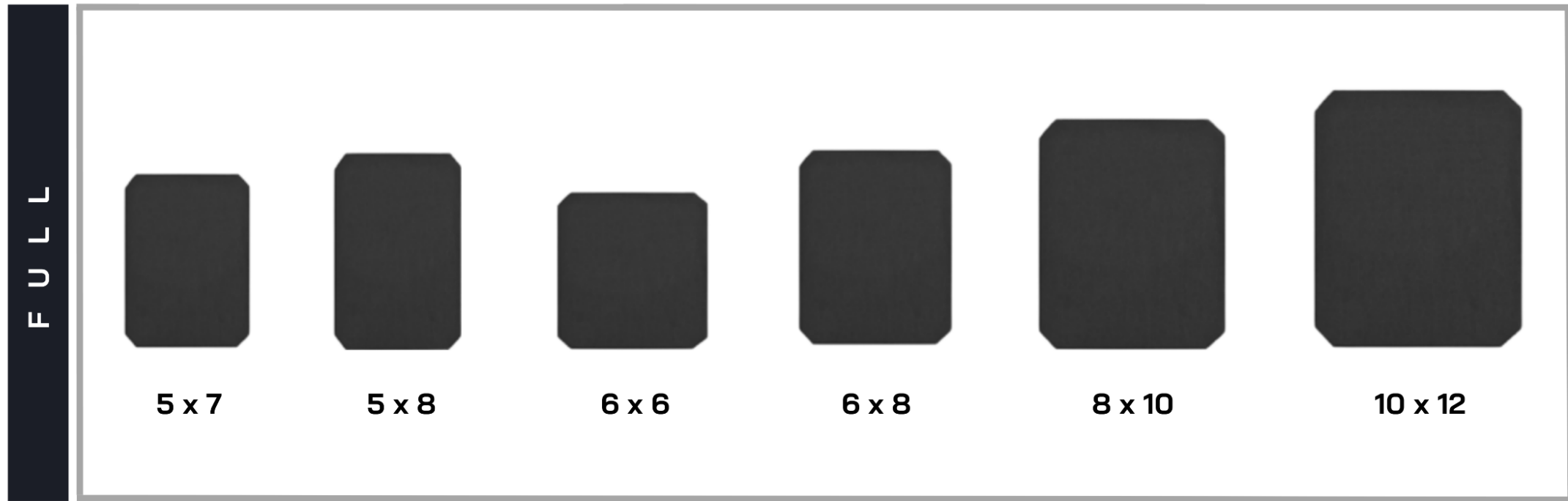


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HARD ARMOR (PLATES)

Plates are manufactured in a variety of shapes (cuts) and sizes:

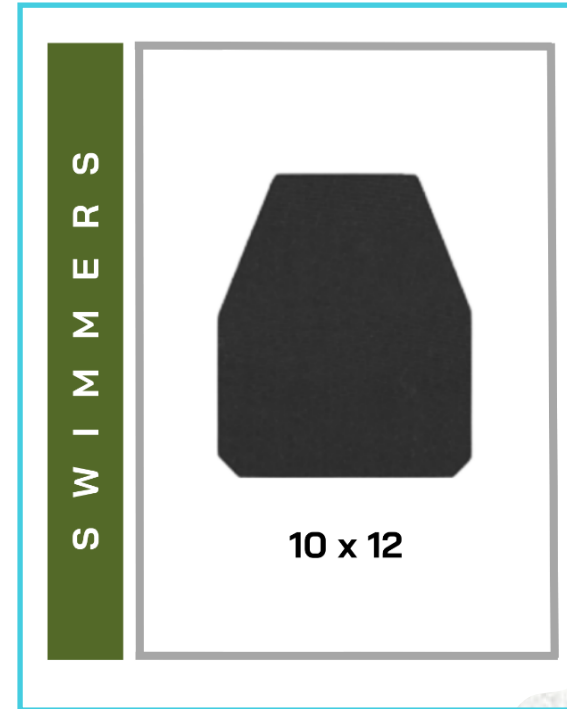
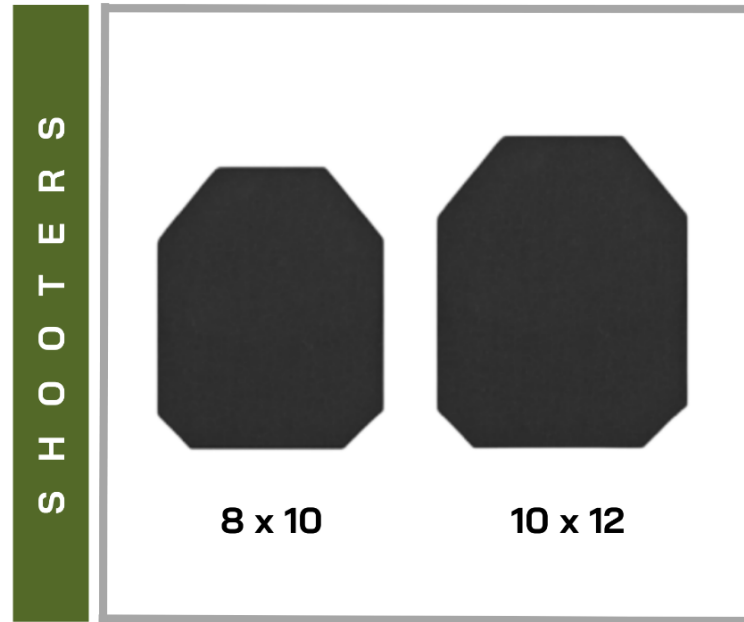


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HARD ARMOR (PLATES)

Ladies typically prefer shooters or swimmers cut plates.



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HARD ARMOR (PLATES)

Plates are manufactured in a number of different curvatures:

C U R V A T U R E



MULTI-CURVE



SINGLE CURVE



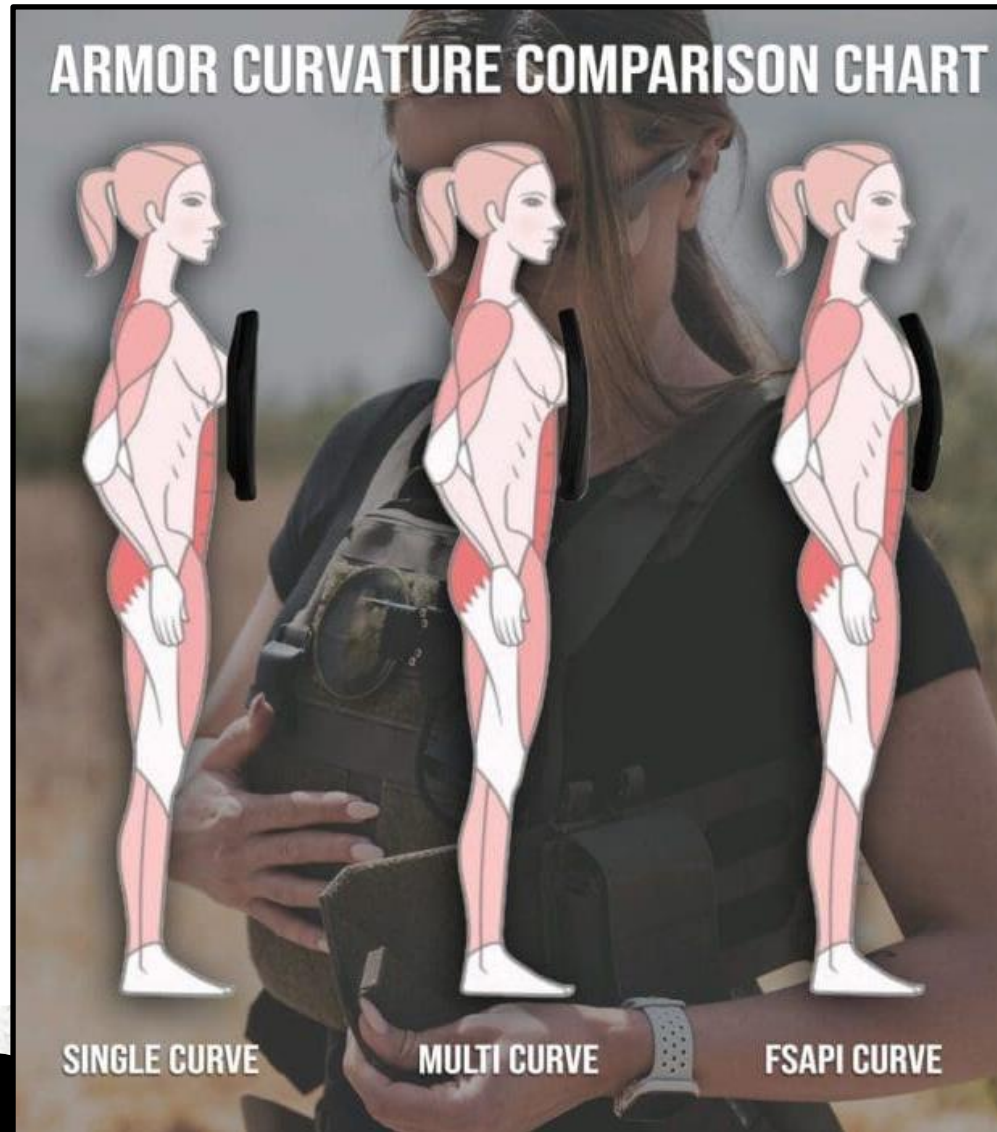
FLAT



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HARD ARMOR (PLATES)



Ladies typically
prefer curved
over flat plates.



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HARD ARMOR (PLATES)

What size plate do I need?



Most reputable manufacturers will offer standardized SAPI sizing and 8X10 or 10x12 shooter/swimmer cut options.

The plate size you choose will directly affect what carrier you purchase, so it is crucial to narrow this down before buying a plate carrier.



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HARD ARMOR (PLATES)

Measuring for your plates.



Chest Measurement:

Measure under the arms around the fullest part of the chest. Be sure to keep the measuring tape level across your back and comfortably loose.

Length Of Plate:

Determine the length of the plate that best suits your body type while protecting all vital organs and vessels. The plate should fit comfortably when sitting and standing. This measurement will need to be taken from the Clavicular Notch, which sits right below your neck.



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HARD ARMOR (PLATES)

Nominal plate sizes.



Chest Size (Inches)	32-35	36-39	40-43	44-47	48+
SAPI Cuts	XS	S	M	L	XL
	7.25x11.5	8.75x11.75	9.5x12.5	10.25x13.25	11x14
Shooter Cuts	S		L		
	8x10		10x12		



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PLATE CARRIERS



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PLATE CARRIERS

Hard armor plates require a plate carrier to house them.
They come in a variety of colors and styles.



FRONT



BACK



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PLATE CARRIERS

Recommended low profile, discrete carriers:

London Bridge
Trading



Ultra Low Vis
Plate Carrier



FERRO CONCEPTS 

The Slickster™



T.REX AC1



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PLATE CARRIERS

Accessories can also be added to carry gear.

FERRO CONCEPTS 

The Slickster™



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Let's have a look at some examples of armor and carriers.



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DIAMONDS & DERRINGERS



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