



# Understanding Bullet Construction for Big-Bore Hunting

The first thing a hunter should consider when hunting large or dangerous big game is cartridge caliber and bullet construction. Matching the right cartridge and bullet will enhance the hunting experience and help avoid a potentially dangerous confrontation with certain types of big game.

Big-bore firearms generally give an advantage to hunters of tough big game. Their frontal area is larger than medium or small bores and transfers energy more efficiently to the target animal. Big-bores are .400" in diameter or greater. Medium bores range from .300" to

.399" and small bores are .299" and smaller. There is some overlap in these ranges, but these are generally accepted figures.

The following chart outlines the frontal area advantage of .500" diameter bullets.

Bullet Diameter inches	Frontal Area in <sup>2</sup>	.500" area Advantage
0.500	0.196	
0.458	0.165	19.2%
0.451	0.160	22.9%
0.375	0.110	77.8%
0.338	0.090	118.8%
0.308	0.075	163.5%
0.277	0.060	225.8%
0.224	0.039	398.2%

Big-bore bullets like those for the 500 S&W Magnum have the advantage of already being a larger diameter over expanding bullets of smaller diameter. Combine this generally heavier bullet weight and you have a projectile that can be ideal for penetration and energy transfer.

Tough, thick skin and heavy bone structure are characteristics of large or dangerous game. Bullet construction needs to be strong enough to penetrate the skin and bones and reach vital areas such as the lungs, heart, brain, and spinal cord to ensure a quick kill.

Monolithic solids, mono-metal expanding, hard cast lead, full metal jacket, jacketed hollow points, and jacketed soft points are some of the major types of bullets. Jacketed hollow point and soft point bullets have sub-categories with additional jacket material internally to create a bullet to deform predictably.

Monolithic solid bullets are designed to stay in one piece with minimal deformation. Bullets are

turned on a lathe out of copper or brass. They typically



have a large, flat meplat and are optimal for maximum penetration, even when striking heavy, dense bone structures. They also tend to maintain the original bullet path, regardless of what they encounter.

Mono-metal expanding bullets are



made of copper or brass and designed to expand when

contacting flesh. This expansion increases energy transfer but decreases penetration.

Hard-cast lead bullets are like monolithic solids

but are more susceptible to deformation or breaking when contacting dense bone structures.

They are cast



from lead with alloying elements to make the material harder. They are often heat treated to get the consistent hardness of Brinell 20. Copper gas checks are often added to the base to reduce gas cutting and barrel fouling. Gas checks are typically used for cartridges that exceed muzzle velocities of 1000-1100 feet per second. Hard-cast lead bullets also tend to maintain their original path.

Full metal jacket bullets have a lead core with a complete covering of gilding metal. They tend to be pointed spitzer-type bullets and are generally not used in hunting unless they are constructed to expand in various ways by manufacturers. Spitzer-type bullets are not suitable for use in our tube magazine lever guns.

Jacketed hollow points are generally lead bullets with a gilding



metal jacket and a hollow meplat.

They are designed to expand when contacting flesh and bone. This deformation is designed to enlarge the frontal area of the bullet and transfer energy more efficiently. There is a bit of cost to this. Some energy is used in the deformation. Deformation can also lead to fracturing the bullet into pieces which will generally decrease penetration. The rounded frontal surfaces on the enlarged bullet tend to deflect more when hitting hard bones. The bullet path can vary within the animal.

Jacketed soft-point bullets are like hollow points with an exposed soft lead point and core. They are designed to expand when contacting flesh.



A subcategory for jacketed hollow point and soft point bullets generally uses an internal bridge of jacket material separating the lead core into two parts. This is designed to create a front portion that will expand and a rear portion

that will remain intact. This facilitates more penetration by the rear portion.

All the expanding bullet types need a minimum velocity at impact to start the expansion. This minimum velocity varies with bullet construction, diameter, and shape. If the contact velocity is below this minimum, the bullet will not expand and energy transfer will be less.

Choosing the right bullet for big-bore hunting is essential for ensuring both effectiveness and safety when pursuing large or dangerous game. Understanding the differences in bullet

construction—from monolithic solids to jacketed hollow points—allows hunters to make informed decisions based on their specific needs.

Whether prioritizing deep penetration, controlled expansion, or energy transfer, selecting the appropriate bullet can mean the difference between a clean, ethical harvest and an unpredictable encounter.

By pairing the right cartridge with the right bullet, hunters can maximize their firearm's potential and increase their chances of success in the field.



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