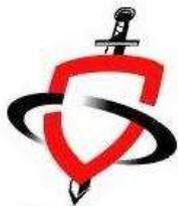




M-Series Armor Piercing Cartridges Utilizing Tungsten Carbide Penetrators





ALL OUR AMMO IS MANUFACTURED IN THE USA.
We produce NATO and NSA calibers.
Regular or Match ammunition.

The M-Series Armor Piercing (AP) bullets and bullet components utilizes unique processes to deliver the highest levels of repeatability.

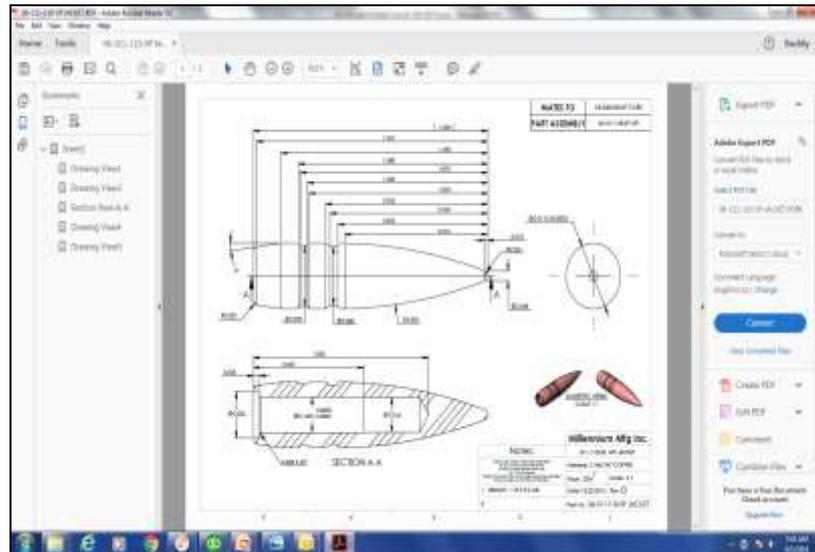
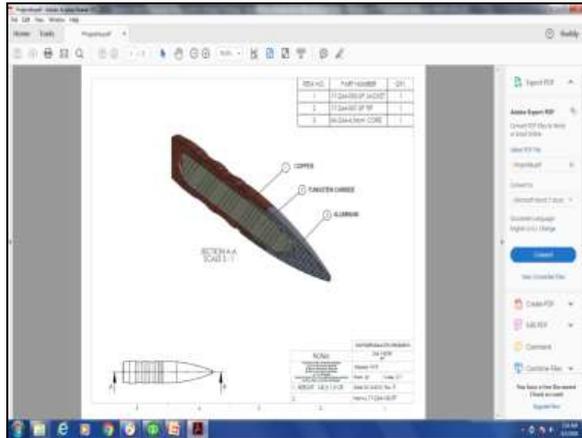
While traditional jacketed bullets are produced on multi-stage stamping machines consisting of dies, with each stage and die combination producing a slightly different bullet, M-Series bullets and components are machined on state-of-the-art CNC machines to produce incredibly precise tolerances and eliminate manufacturing variations.

In addition, unlike traditional jacketed bullets that are produced statically, resulting in off-center components and voids, the M-series process involves turning each bullet from a solid bar free of inclusions and voids while spinning at a high rpm. This produces a stable bullet whose axis of symmetry is equal to its axis of geometry, thus ensuring a stable flight.





High precision CNC manufacturing



- Precise tolerances
 - Increase accuracy at longer ranges
- More flexibility in design
 - Adjust balance to best match weapon
 - More flexibility on weight
 - Reduced strain on the barrel maintains accuracy over the weapons life:
 - Bullet construction and design
 - Material composition
 - Adjust projectile ballistic bands to reduce bearing surface stress
- More capability to support low volume production Vs traditional stamping method





Why use tungsten carbide vs hardened steel as a penetrator in armor piercing ammunition?



- The density of tungsten exceeds **19 grams per cubic centimeter**, and steel, though it has a varying density owing to its different alloys, has a density on the order of **8 grams per centimeter**
- Tungsten Carbide is also about **twice as strong steel**
- Two key factors in a good AP round are velocity and density of the penetrator







M-Series AP Ammunition

• **Are completely sealed** using US DoD Mil-Spec HV sealant

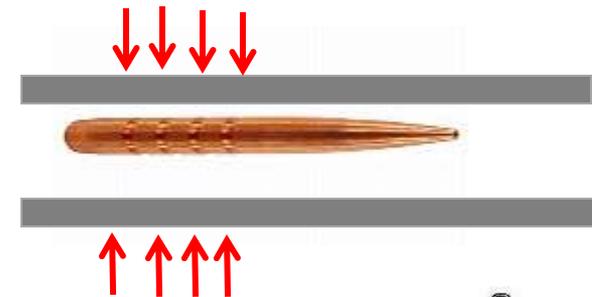


• **Very best accuracy** due to the incredibly precise tolerances and eliminate manufacturing variations



• **Reduced strain** on the barrel maintains accuracy over the weapons life

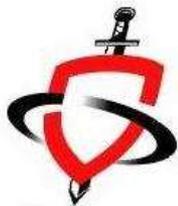
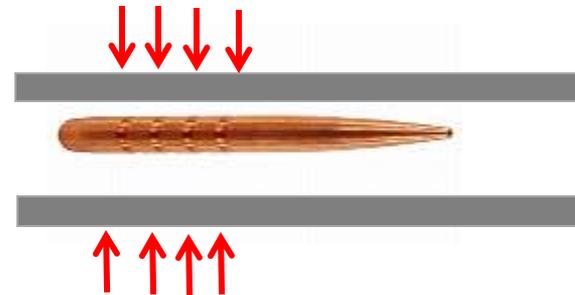
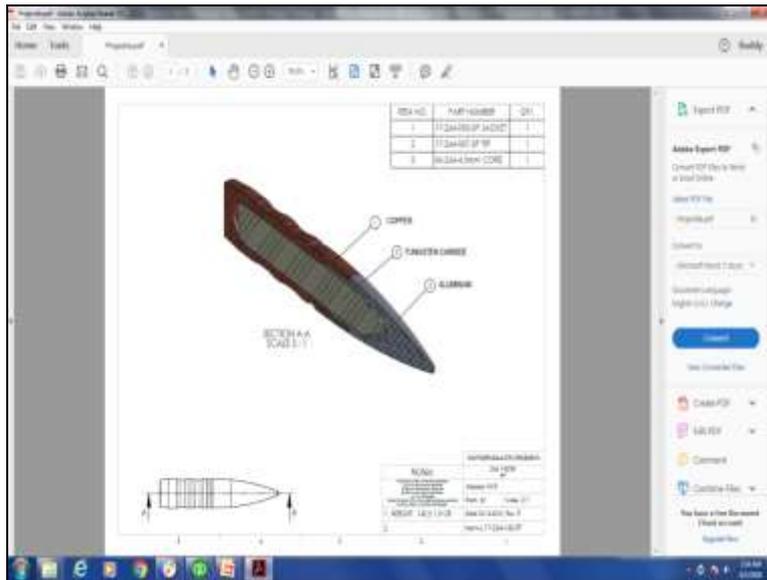
- Bullet construction and design
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•Reduced strain on the barrel maintains accuracy over the weapons life:

- Bullet construction and design
- Material composition
- Adjust projectile ballistic bands to reduce bearing surface stress





Match vs Standard Ammunition

For “Match” ammunition:

- **Components are carefully selected**
 - Use of “Match” primers, such as Federal Match®
 - Use of “Match” brass cases that are manufactured to tighter tolerances. e.g. in 7.62x51mm for US DoD there are National Match cases and standard Lake City (LC) cases.
 - Powder is more carefully selected and tested to ensure the best possible accuracy and performance to match bullet type and weight.
- **More pressure/velocity testing is performed in a lab setting and more testing using various weapon platforms is also conducted.**
 - It is preferred, if possible, test using the clients type of weapon. (Twist rate & chamber throat size for example will affect bullet performance). Matching ammo to a weapon can be important to ensure accuracy at extreme ranges.
- **The speed of actual production is slower, rounds per hour, to ensure a higher Quality Control.**
- **Increased randomized LOT sampling/testing to increase the statistical likelihood of detecting an issue.**
- **100% chamber gauged checked and visible inspected**





- **Flexibility in design** and more capability to **support low volume production**
- Can produce in **any caliber**.
- The following slides are specification sheets of some general calibers in the M-Series AP.
 - 5.56mm
 - 7.62x51mm
 - 7.62x39 mm
 - 7.62x54R
 - 300 Win Mag
 - 6.5 Creedmoor
 - 300 Blackout
 - 8.6x70mm (338 Lapua Mag)
 - 375 Cheytac
 - 408 Cheytac
 - 12.7x99 Match





- In addition to the M-Series using Tungsten Carbide, the 50 BMG long range sniper utilizes a hardness steel penetrator core.
- Hardened steel penetrator is more practical in the 50 Cal because the size of the caliber does allow for the needed mass, and the steel can be more precisely machined.
- Bullet design can be customized to match a specific weapon platform to ensure the best possible performance.



PROJECTILE: (750 gr)

JACKET BODY: (either alloy based on availability)

- 1) C147 (Sulfur Copper)
 - a. Cu – 99.8%
 - b. S – 0.20 %
- 2) C145 (tellurium copper)
 - a. Cu – 99.50%
 - b. Te - 0.50%

PENETRATOR CORE

- 1) Hardened Steel, Rc60



Armor plate test. RHA HB300 @ 100 rds. @ zero degrees. 25mm (one inch)

