



## Russia Adopts 57mm Caliber as Standard for Future Armored Vehicles

**OE Watch Commentary:** The Russian Federation has a long history of using 57mm caliber weapons. The Soviet manufactured ZSU-57-2 self-propelled anti-aircraft gun (SPAAG) was considered to be quite a success during the Vietnam War, the Arab-Israeli wars, and the Iran-Iraq War. Although the ZSU-57-2 lacked a radar system, making the targeting of jet aircraft extremely difficult, the system was excellent at engaging slower moving targets. The ZSU-57-2 and other SPAAGs that use smaller caliber shells, such as the ZSU-23-4 Shilka, the 2K22 Tunguska, and the Pantsir-S1, have an important secondary mission to use their rapid-fire guns to fire on ground targets when required. As discussed in the accompanying excerpted article from *Nezavisimoye Voyennoye Obozreniye*, Russia is currently developing its next generation of SPAAG technology, the 2S38 Derivatsiya-PVO SPAAG, which will reportedly be a 57mm gun system mounted on a BMP-3 chassis intended to primarily target helicopters and ground attack aircraft. The 57mm shell is considered to be ideal for destroying low-flying and (relatively) slow targets such as tactical UAVs, MLRS projectiles, cruise missiles, precision-guided munitions, and certain ground targets.

The accompanying excerpted article from *Izvestiya* discusses a recent Russian decision to make the 57mm autocannon a standard armament on future Russian infantry fighting vehicles (BMPs) and armored personnel carriers (BTRs). The Russian Federation has long made modularity a cornerstone of its military modernization. For instance, the Armata, Kurganets, Atom, BTR-82, BMD-4M chassis are all manufactured to accept BMP-3 turret specifications, so chassis and turrets of different manufacturers may be mixed and matched. Since these new turrets are all unmanned, some Russian theorists have posited that there will be no functional difference between infantry fighting vehicles and armored personnel carriers in the future. The Russian Federation could possibly adopt the AU-220M Baikal 57mm automated turret that reportedly can fire 120 shells per minute. As explained in the article, the Russians view larger caliber munitions, such as the 57mm, as essential for establishing dominance on the battlefield. Of particular note, there will likely be several different types of (interchangeable) shells produced for these systems to suit their particular missions. **End OE Watch Commentary (Bartles)**

*“A light armored vehicle with a 57 millimeter gun will obtain an advantage over other armored vehicles of that same class.”*



BRM-3K armored reconnaissance vehicle with 57mm AU-220M Baikal turret system.

Source: Vitaly Kuzmin Blog, CC 4.0. (<https://www.vitalykuzmin.net/Copyright-policy>), <https://photos.smugmug.com/Military/ARMY-2016-Static-part1/i-fqqrPr/0/Secce52a/X2/Army2016-215-X2.jpg>.

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## Continued: Russia Adopts 57mm Caliber as Standard for Future Armored Vehicles

**Source:** Irina Dronina, “Огненная «Деривация»: Российская армия получит новую зенитную самоходку (Fire ‘Derivation’: The Russian Army to Get New Self-Propelled Antiaircraft System,)” *Nezavisimoye Voyennoye Obozreniye*, 13 September 2018. [http://nvo.ng.ru/nvo/2018-09-13/5\\_1013\\_arms.html](http://nvo.ng.ru/nvo/2018-09-13/5_1013_arms.html)

*One of the armament and military equipment novelties presented at the recent Army-2018 forum was the 2S38 Derivatsiya-PVO self-propelled antiaircraft gun (SPAAG)...the unmanned combat module, in other words, the turret, in which there is no room set aside for crew members, but rather the 57-mm gun and 7.62-mm machine gun are controlled remotely from the hull where the three-man crew is resides...Stipulated for use...is the BMP-3 armored tracked chassis...The complex also includes a transporter-loader, a repair vehicle, and an ammunition set.*

*The ammunition set of the new antiaircraft artillery complex includes 148 rounds, while the developer provided for their automatic supply to the gun. The combat module's design allows for circular horizontal aiming with the ability to adjust the vertical angle of the barrel from -5 to +75 degrees. The gun's rate of fire is 120 rounds per minute...*

*In addition to standard ammunition, for the gun they can use fundamentally new rounds – multifunctional with remote detonator and guided artillery. The use of a programmable detonator is the main novelty here; prior to firing, the munition receives data from the fire control system, and the detonator will detonate the round at the assigned moment and the assigned distance from the gun.*

*The new self-propelled antiaircraft artillery piece will have an electro-optical control system with laser rangefinders and it can destroy air targets at distances of up to six kilometers and altitudes of up to 4.5 kilometers.*

*The Derivatsiya-PVO can be called a universal complex capable of operating under conditions of fire and radioelectronic countermeasures, as well as at any time of day and in any weather. It can be used when shooting at ground targets, including armor, as well as at enemy live forces. At the same time, the most effective ammunition is individually selected for each specific target.*



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2S38.Derivatsiya-PVO.Self-Propelled Antiaircraft.Gun.

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**Source:** “Убойные миллиметры: БМП и БТР вооружат мощными пушками-пулеметами (Destructive Millimeters: They Will Arm BMPs and BTRs with Powerful Autocannons),” *Izvestiya*, 8 November 2018. <https://iz.ru/795299/aleksei-ramm-bogdan-stepovoi/uboinye-millimetry-bmp-i-btr-vooruzhat-moshchnymi-pushkami-pulemetami>

*The Ministry of Defense has approved the new armored vehicle development concept. The new maximum caliber – 57 millimeters – has been selected for all light armored vehicles (BMPs [infantry fighting vehicles], BTRs [armored personnel carriers], and armored motor vehicles). Those guns are strong based upon their versatility. They are capable of not only destroying tanks, but also of shooting down unmanned aerial vehicles. One can compare their rate of fire with a machinegun. For the time being, only Russia has been able to bring that weapon up to series production. A light armored vehicle with a 57 millimeter gun will obtain an advantage over other armored vehicles of that same class.*

*A Ministry of Defense spokesman told *Izvestiya* that the new armored vehicle development concept was approved this year. Before making the decision, experimental-design work was conducted, which confirmed the feasibility of arming those vehicles with 57mm guns. Right now, as a rule, they install 30mm or 100mm guns-launchers on BMPs and BTRs. The local wars and armed conflicts of recent years have shown that the existing weapons are not always effective while combating high-speed or armored targets.*

*The more powerful 57mm gun will permit a Russian light armored vehicle to not only easily deal with BMPs and BTRs but also enter into a skirmish with any existing probable enemy tanks, if necessary. It will be able to use it to damage sights, thermal-imaging devices, and other external equipment or to attack the side of such a well-defended tank as an Abrams.*

*Not hostile tanks, BTRs, or BMPs, but lightly-armored jeeps or unmanned aerial vehicles are increasingly becoming the main target on the battlefield for armored transport vehicle crews. Those targets need to be destroyed at maximum range, having used a minimal amount of ammunition. It is impossible to permit light infantry, which is traveling in “21st century machinegun carts”, to be the first to employ antitank guided missiles or drones – to transmit reconnaissance information to their command post...*

*The new guns will increase the Ground Troops’ firepower, Military Expert Sergey Suvorov thinks. “He who more rapidly accomplishes his fire mission, will win in a contemporary war”, he told *Izvestiya*. “The 57mm seriously improves that indicator through its greater accuracy, lethality, and high armor-piercing capability than the existing 30mm guns”. This should ensure the superiority of domestic equipment over the latest BMPs and BTRs of the armies of the world’s leading countries for years. So, for example, the German Puma heavy BMP, which arrived in the Bundeswehr inventory in 2015, has just a 30mm gun in its weaponry.*



ZSU-57-2 Soviet self-propelled anti-aircraft gun.

Source: User:VargaA, [https://commons.wikimedia.org/wiki/File:ZSU-57-2\\_Hun\\_2010\\_02.jpg](https://commons.wikimedia.org/wiki/File:ZSU-57-2_Hun_2010_02.jpg), CC BY-SA 4.0 (<https://creativecommons.org/licenses/by-sa/4.0/>), from Wikimedia Commons.