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Automatic Electric Gun [AEG] Reviews

Systema Super Max Review

Manufacturer	Systema
Model	Super Max PTW
Capacity	120
Weight	3700g with battery
Power	n/a
Motor	enhanced 490 motor
Hop-up	adjustable
Battery	12v 1200mah
Shooting Mode	Semi / Auto
Construction	stainless steel

Pros	Cons	Verdict
Realistic weight and feel High reliability Quick trigger responce Realistic trigger pull Highly accurate Consistent FPS Realistic dimensions High endurance Enhanced electrical system Ability to use real steel parts	High price tag Does not come with realistic/authentic markings Hop adjustment requires magazine removed Box does not have foam padding	If you're after realism, a good performing gun, ability to use genuine / authentic parts and want to look the part... this is without a doubt, a gun for you as this was designed to be an alternative option for force-on-force training. The price tag might be at the upper levels but for a high end product, the reliability and durability speaks for itself and is well worth the money.

Firstly, we would like to thank **'nachostheclown'** of **Arnies Airsoft** that has kindly supplied us with the comparison pictures of a Systema PTW to a real steel Colt Armalite. As this has helped to emphasize the similarities and differences between different replicas to the real steel counterparts.

Introduction:

Systema markets their PTW lines of AEG to the law enforcement and military for training use as well as the Airsoft markets. Having said that, you'll be expecting this AEG to function realistically and have the finish and the feel of a real steel counterpart right? Read more to find out. Although the military and law enforcement have used various force-on-force training weapon systems to provide the realistic training they need such as using simulnition and the US MILES system. But they come at a high price tag, high ammo costs for simulnition and the high equipment costs for the MILES system. Taking a completely new stance to force-on-force training, Systema have mixed the Airsoft skirmish elements and fused it with the training the law enforcement or military personnel require. With the lower costs on weapon and ammo compared to other training alternatives, this is already the alternative to existing training weapons with an affordable price tag.

Initial Impressions:

The Systema Super Max comes in a box that doesn't do it any justice at all; it's just a plain white box with a plain monotone sticker signifying what model from the SuperMax series and neither does it come with any foam padding on the inside protecting the gun during transit. Having said that, this gun is **extremely** sturdy and well built and various other sources on the internet have never encountered a problem with receiving a damaged PTW due to the shipping process. This can be seen either as a good or a bad point, totally subjective point of view as one may wish to see care is taken in the packaging on a high end product whereas on the other hand, this totally proves the ruggedness of this beautiful piece of work.

Pantac Single Fragmention Grenade Pouch (RG / CORDURA)

Upon initial handling, this instantly feels different from other branded AEGs. This is mainly due to the weight and how solid it feels, weighing in almost exactly the same as the real steel version and using high quality stainless steel which can be seen as an improvement to the MAX version where it used aluminum for some of its parts such as the barrel and the front iron sights. Another noticeable feature with this gun is that the top and bottom receivers are made very precise so that there is no wobble at all between the two parts of the receivers which various other AEG alternatives on the Airsoft market seem to have in one way or another. Was not totally convinced every little part was done as close to the real steel counterpart, the front end was inspected to see the construction of this PTW replica. It is instantly noted that the one piece outer barrel will eliminate any barrel wobble and inaccuracy issues it may have working in conjunction to the extremely strong and well built delta ring connection to the receiver. Furthermore, all the plastic parts are fiber reinforced so that the issues of having your hand guards flexing under pressure from the delta ring would be eliminated as well as prolonging the endurance of the parts that are not supposed to be metal.

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IPR2023-01339

Notice the one piece outer barrel and the imitation gas tube.

The receiver is made with high precision ensuring the fit is absolutely perfect, giving it no receiver wobbles.

The rear receiver pin also includes a retention pin so that it is not easily lost. This is also featured on the real steel models too.

So why choose this over an AEG?

The Systema SuperMax is designed to be as close to the real thing as possible, even down to how the working real steel features are taken into account. The bolt lock, the way you access the receiver, removing the bolt, the weight, the feel and the performance. (Which will be mentioned in more detail below)

The electronic bolt lock system is activated when the follower in the empty magazine raises the tab at the back of the magazine, deactivating a micro switch disconnecting the electronic trigger system. Thus, the weapon will have no response until either a fresh magazine is put into the mag well and/or the bolt release tab is pressed down.

The follower pushes the round into the front of the nozzle feeding the last round of the magazine.

The follower may fall out if the retention clips become weaker due to use.

Note: the micro switch under the bolt release.

The magazine also replicates the real steel dimensions where the regular AEG magazines are typically shorter in length due to the hop chamber being at the top of the mag well but it is shortened so that it would look correct when it is inserted. (Shown in the picture below) This is also something AEGs cannot offer that Systema PTW can, the magazines that are of the correct dimensions when they are in your magazine pouches. However, the mags are not perfect and some extra attention may be needed when they are empty as the follower can fall out after some time when the retention claw loses its original strength. On the other hand, the feeding mechanism is an improvement from the normal AEG design where a loaded magazine is released, there will be a number of rounds that would drop out of the hop chamber's feeding tube, the Systema PTW design minimizes that by having a feed hole where there's only enough space for one bb to fit there. Meaning when unloading a loaded magazine from the weapon, this will only drop one bb instead of a number of BBs during reloading or unloading procedures.

Mag comparison.
TM
PTW
Real Steel

Mag comparison.
TM
PTW
Real Steel

With the hop and cylinder design, the PTW is able to have the same dimensions in the magazine as well as the magazine protruding the same length as the real steel version.

Another feature that separates the PTW to other replicas is that the method to extract the cylinder is just the same as extracting the bolt and its carrier to the real steel counterpart. Thanks to Systema's design, not only have they reduced the hop unit's size, the complete cylinder kit can be removed out of the rear of the upper receiver just by a simple pull of the cocking handle extracting it. The cylinder is also different from the normal AEG cylinders and gearbox design to give it a better compression ratio, although this will not be at any skirmishable powers using the M165 spring Systema designed this gun for. The Super Max utilizes a PTFE plated cylinder that is also the bore-up version allowing a higher capacity of compressed air to be expelled out of the nozzle at a reduced resistance, hence the more stable FPS even at higher powers compared to its older versions where the deviation in muzzle velocity becomes higher due to its cylinder design.

Note the spur gear recess is different between the MAX and Super Max as well as the Super Max having the full length cylinder.

Cylinder extraction is exactly the same as the real steel

Note: the channels for the piston allowing support as well as minimizing friction.

According to the 'mission is completed' report, the gearbox was designed to offer unparalleled performance and durability. Curious on how Systema have gone about creating this gearbox, we had to take a look at the gearbox. Considering how the SuperMax was designed for the M165 spring, attention was focused more on the gear system on how it would provide better performance as well as durability to other gearboxes or AEGs.

Firstly the motor is pretty much self explainatory, it's much bigger in size compared to the regular AEGs and designed for a higher voltage than the standard AEGs, it's pretty much a given that the motor performs at a higher speed and torque than regular AEG motors. Although the Super Max have the same motor if you were to look at it on the surface, but internally this has been improved with durability and efficiency in mind. Instead of using the same 490 type motor, the carbon brush contains 30% silver to reduce internal resistance and wear on the commutator. In turn, this has significantly improved performance and durability at the same time. This was only just the beginning because as you move forward to examine the gears, you will notice the teeth on the gears are somewhat different from the ones you would see in a regular AEG. The gears are of a flat-top design where the contact tips of the gears plateau so when each tooth connect or disconnect with each other, it is released with much less friction or resistance providing a cleaner kinetic connection between the gears allowing the gearbox to run smoother and last longer. This is not the only difference in the gearbox design, the bevel gear have been fitted with a bearing system which allows a smoother action between the gear and the gear shaft. The gear ratio on the complete system have been lowered by 20% to compensate for the higher powered spring, high powered motor as well as reducing the electrical burden any system will have to deal with when high powered springs and motors are in use.

Finally, the spur gear and the sector gear is what throws some people off because of its revolutionary design to keep the gears completely inside the lower receiver meant that space was limited. To save space inside the gearbox without sacrificing the strength and durability, Systema have decided to enclose gear mechanisms inside the sector gear. As illustrated in the pictures below, you can see that when the helical bevel gear turns the helical spur gear, this will in turn rotate the 4 internal satellite gears inside the sector gear which pulls the sector gear back. The reason why there are 4 internal satellite gears is because to cope with the speed and torque, the load is shared out at 4 different points of the gear at any given moment of the cycle. Although on the Max version, there is only 1 stainless steel gear and 3 aluminum gears due to the torque from the spur gear pressuring to one side, the stainless steel gear was put there for reinforcement whilst maintaining the lightweight properties. This is not the case with the Super Max version as it is with higher power levels and endurance in mind, therefore using all 4 satellite gears in stainless steel makes perfect sense to cope with the higher tensions involved.

Satellite gear system inside the sector gear. Note: this is from the Max version where there is only one single stainless steel gear. The Super Max version offers all 4 stainless steel gears.

Motor is significantly larger than regular AEGs.

Due to the way the motor is secured on to the PTW, this is extremely sturdy and will not require re-alignment like most AEGs.

Authentic parts?

When it comes to realism, the first thing you would do is to question its authenticity, asking: 'What is not realistic about this?' and automatically realize the markings on the receiver. Its markings are not from any genuine manufacturers from the real steel world but its quality, material and sturdiness makes up for that. From another point of view, when it comes to markings and looks, it really does boil down to your own personal preference. Some may prefer a Bushmaster branded receiver when others may prefer a Colt. So if it already comes with a certain brand, the original branded receiver may be changed to a different branded body after all. So you may be asking what is available for you to choose from. Dytac for example is one of the manufacturers that can supply you with various aftermarket parts for your PTW ranging from modular upper receivers, lower receivers, barrel and front end kits.

The design and dimensions of the PTW also allows the use of various real steel parts without modification if it is required. For example, shown in the pictures below is a PTW fitted with a Daniel Defense RIS front end in dark earth. So while you're on the search for parts to completely personalize your PTW, there are also outer barrel kits with various lengths from Dytac that can be used to accompany your front end. So what does this mean? This means you can completely transform your PTW into a replica weapon with as much realism as possible by putting on genuine real steel parts where there are yet to produce Airsoft replicated parts for. Not only will you have a genuine piece of kit with all the authenticity and features a real steel rifle has, you will also be able to use this in a game without the worry that you will underperform when faced with other AEGs.

VItor markings

Daniel Defence RIS rail front end

VItor markings

Performance

So with all that said, how does it **actually** perform?

Firstly a grouping test was done at a 20metres distance using KSC's .20g ammo, bear in mind this gun was taken for a grouping test straight out of the box. Well, after a few initial pictures first. This groupings test produced an unexpected result at first as it gave a grouping that was sub-par with the group 6 o'clock of the bull. The hop was then adjusted to realign the trajectory to be flat as long as possible and shot at a second target for a groupings test. This time round the grouping is much more impressive as it gave a very consistent grouping size of 1ï¿½ inch (45mm) all around the bull. Considering its high fps that may cause the light .20g ammo to have an unstable flight path, using heavier ammo at high fps will require a much longer distance and unfortunately, there is no suitable place nearby with favorable conditions to produce a conclusive report on its accuracy.

So what about the fps? Is it consistent? It can be said that with Systema's engineering, it has vastly improved the air seal and compression issues other AEGs may encounter as when it was pumping out BBs just shy of the legal limit of Hong Kong of 2Joules, the variance in fps was only ï¿½7fps using .20g ammo. This goes to show there is little to no air leak in the system along with the spring being reliable and consistent enough to produce consistent shots.

Grouping at 20M before adjusting the hop.

Grouping at 20M after hop adjusted. Producing a 1ï¿½ inch (45mm) grouping.

Due to its 20% reduction in gear ratio to increase its torque in the gear system to cope with the higher powers the Super Max is intended to be used for, the fully automatic firing has also become more realistic in terms of its rate of fire where some PTWs are able to pump out 25-30 rounds a second with a freshly charged 12v battery and the correct amount of lubrication in the system to not cause 'sticking' with other internal mechanisms. This does not mean however, that the Super Max cannot handle lower powered springs due to its modification to fire at high fps. Systema have released the Super Max 2 version where it uses a M90 spring and apart from the change in spring, nothing is different.

Conclusion

So is this gun for me? This is the question you should be asking yourself if you want to know if this gun is worth the money. This is highly likely to be the main question people will ask if they were to consider to buy a Super Max due to its higher end price tag. It is however, also a high end product specifically designed for a specific set of people, the law enforcement or the military. Considering it's designed as an alternative for force-on-force training, the usual elements of the mainstream AEG may not be present. E.g. The ease of adjustment of the hop up without removing the magazine or requiring disassembly, although the hop up system on the Super Max is a lot more consistent and stable even when used and will not automatically work its way loose during use.

As mentioned above, the real steel parts or aftermarket parts that have authentic markings on this gun can be sourced easily and can be readily available from a vast amount of sources around the world so customization will not be an issue here. Not only will this working piece will look good with authentic parts that may not be available for an Airsoft replica, the performance and endurance levels of this gun are also amongst the top end of the list when compared with other branded AEGs. From the trigger response, accuracy and reliability of this AEG, everything down to the trigger pull mimics the real steel counterpart. So if you're after realism, great looks as well as great performance, do not hesitate. This AEG has it all with room to spare for an endless list of possibilities with aftermarket parts available to customize your gun. The experience you get when using this gun during a skirmish will definitely provide you with a feeling that no other AEGs can replace, so why not look good, feel good and play even better with the Systema Super Max PTW?

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