

REDISCOVER

UPGRADES

V. 2.0



ULTIMATE[®] Upgrade Series



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INFINITY
motor series included



actionsportgames.com

REDISCOVER UPGRADES

Airsoft gamers have always sought new ways in which to improve their AEG's. The launch of the **ULTIMATE**® Upgrade Series from ActionSportGames® gives Airsoft enthusiasts an opportunity to gain access to a series of unique upgrade parts in terms of both superior technology and solid upgrade solutions.

Years of experience with tuning and upgrading electrical Airsoft guns and explicit know-how of production processes from the automobile industry come together in the **ULTIMATE**® Upgrade Series to give Airsoft gamers and enthusiasts the thrill and satisfaction of upgrading their preferred AEG and the enjoyment of seeing it outperform other AEG's in all aspects of an airsoftgame.

The range of products in the series cover all types of upgrades – from small add-on parts to complete tunings and upgrades – to both Sportline and Proline series of AEG's.

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U
ULTIMATE®
Upgrade Series

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Motor,
 INFINITY U-40000,
 long axle



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ULTIMATE® catalogues available
 in French, Italian and Spanish.

French
 Ref. 17109

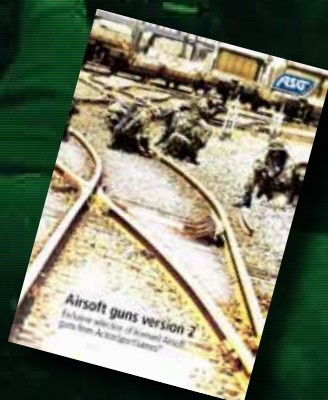
Italian
 Ref. 17211

Spanish
 Ref. 17210



New Airsoft catalogue available

Ref. 17354



Work pad

Ref. 17161



Upgrade basics

Choosing model

In order to choose the correct ULTIMATE® parts for an upgrade, you must first choose which model of AEG you want to upgrade. After this, determine the gearbox version – then the spring and motortype. As a guide to these choices refer to the below table, showing the most popular model/version combinations*

AEG model series	Gearbox version	Spring length	Motor type/shaft
Fa mas	version 1	standard	short axle
G3/SAR	version 2	standard	long axle
M4/M15/M16 Defender4/SR16	version 2	standard	long axle
MP5	version 2	standard	long axle
SIG	version 3	standard	medium axle
Steyr AUG	version 3	standard	short axle
AK/Arsenal	version 3	standard	short axle
SA 58	version 3	standard	short axle
CA36/CA8-2/ G36	version 3	standard	short axle
MP5/MP5 PDW&K	version 3	standard	short axle
PSG-1	version 4	long	medium aksel
UZI type	version 5	standard	short axle
P90/CA90	version 6	standard	long axle
M14	version 7	standard	short axle
LMG CA249	version 8	standard	short axle
CA25/Scar H	version 9	long	long axle
LMG M60	version 10	long	short axle
others	mixed	mixed	mixed

* In the 1990's the Japanese company Tokyo MARUI created the foundation for most of the gearbox versions used in AEG's today. A combination of design adapted to specific AEG's and product development has made it possible today to have more gearbox versions to cover a wide range of AEG models. Basically the technique is the same, but the individual components may vary in dimensions or designs depending on the gearbox version.

Solution

After choosing the make and model of your AEG, the next step is to determine which type of upgrade solution you want. Basically there are three types of upgrade solutions, all coming from rate of fire (shots per minute) and power (energy in joule.)

- **Low power solutions**
(high rate of fire is chosen over power)
- **Medium power solutions**
(a compromise between rate of fire and power)
- **High power solutions**
(power is chosen over rate of fire)

In order to chose the right ULTIMATE® part for one of the above upgrade solutions, follow the five steps below to achieve a successful ULTIMATE® upgrade:

1. Spring

determines the solution – low- medium- or high power

2. Gears

is partly controlled by spring, but the choice also determines durability

3. Motor

is chosen after selecting spring and gear. The motor has a great influence on power usage and in turn the strain on conductive parts and the battery

4. Battery

The battery's ability to deliver amps without loosing voltage is crucial to how the final upgrade will work

5. Mechanical parts

mechanical parts are chosen to ensure that the parts in a gearbox can withstand the increased stress applied to the gearbox when the rate of fire and/or power is increased through an upgrade

Upgrade chart

Part selection table

To give a better overview and to help choosing the right combination for each ULTIMATE® upgrade solution according to steps 1–5 we've made the following upgrade matrix. By following the recommendations given in the matrix, you're ensured an optimal as well as durable upgrade.

Of course, upgrade solutions that deviate from the recommendations given in the matrix can be made – even successfully. However, be aware of the fact that extreme upgrades lower the durability of the parts and demand service more often.

Step 1: Springs

M90 (90 m/s or 295 fps)	✓	✓	✓
M100 (100 m/s or 326 fps)	✓	✓	✓
M110 (110 m/s or 360 fps)	✓	✓	✓
M120 (120 m/s or 393 fps)	✓	✓	✓
M130 (130 m/s or 426 fps)	✓	✓	✓
M140 (140 m/s or 459 fps)	✓	✓	✓
M150 (150 m/s or 492 fps)	✓	✓	✓
M170 (170 m/s or 557 fps)	✓	✓	✓
M190 (190 m/s or 623 fps)	✓	✓	✓

Increase velocity
 Increase durability
 Increase precision

Step 3: Motor

High speed/low torque	✓	✓	✓	✓	✓	✓	✓	✓	✓
Standard speed/normal torque	✓	✓	✓	✓	✓	✓	✓	✓	✓
Low speed/high torque	✓	✓	✓	✓	✓	✓	✓	✓	✓

Step 2: Gear ratio

High speed/low torque	✓	✓	✓	✓	✓	✓	✓	✓	✓
Standard speed/normal torque	✓	✓	✓	✓	✓	✓	✓	✓	✓
Low speed/high torque	✓	✓	✓	✓	✓	✓	✓	✓	✓
Low speed/infinite torque	✓	✓	✓	✓	✓	✓	✓	✓	✓

Stress to gears and pistons depending on spring

High speed/low torque	M90	M100	M110	M120	M130	M140	M150	M170	M190
Standard speed/normal torque	M90	M100	M110	M120	M130	M140	M150	M170	M190
Low speed/high torque	M90	M100	M110	M120	M130	M140	M150	M170	M190
Low speed/infinite torque	M90	M100	M110	M120	M130	M140	M150	M170	M190

Step 5: Mechanical parts

Nozzle	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cylinderhead	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cylinder	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
pistonhead	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
piston	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Springguide	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Gears	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Metal/ball bearings	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nozzleguide	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Reversal prevention latch	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Switch/wire/selectorplate	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hop up chamber / rubber	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Precisionbarrel	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Gearbox	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Other parts	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Step 4: Batteries

8,4V-9,6V NiMh or 7,4V Lipo	•	•	•	•	•	•	•	•	•	•	•	•	•
8,4V-12V NiMh or 7,4V-11,1V Lipo	•	•	•	•	•	•	•	•	•	•	•	•	•
9,6V-12V NiMh or 11,1V Lipo	•	•	•	•	•	•	•	•	•	•	•	•	•
10,8V-12V NiMh or 11,1V Lipo	•	•	•	•	•	•	•	•	•	•	•	•	•

- Important parts needed for the selected upgrade
- Optional parts for the selected upgrade
- ✓ The effect provided by the particular part

Insights on upgrades

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Before beginning your upgrades, take time to look through these tips, which can help you get the most out of your upgrade solution.

The technique behind upgrades

The basic principles behind the development of the ULTIMATE® Upgrade Series are all based on simple physics, mechanical engineering and the study of materials science. If a deeper insight of the interaction between springs, gears, motor, battery and mechanical parts is wanted, we suggest reading up on the topics on your own. However, specific points of interest and relevance are topics such as spring characteristics, gear ratios, DC-motors, batteries, etc. With this acquired knowledge the base is set for creating upgrade solutions performing second to none.

On www.actionsportgames.com we strive to keep you updated on our own experiences with ULTIMATE® Upgrade Series. We will post various articles explaining the different upgrade solutions – the AEGs used and the ULTIMATE® parts used.

Solutions

Low power solutions (high rate of fire over power)

The challenge in this solution is to combine the parts in steps 1–5 in such a way that the spring has time to bring the piston into starting position before the gear has rotated ½ turn and catches the piston again. It is possible to overdo the positioning and when that happens, at best only the piston will be damaged.

Medium power solutions (a compromise between rate of fire and power)

These solutions are typically the easiest solutions to make. There is only a moderate increase in the stress on the mechanical parts, making these solutions very durable and at the same time achieving a good balance between rate of fire and power.

High power solutions (power over rate of fire)

This is the solution for many gamers who play in areas with long distances. These high-power upgrades put a lot of stress on all mechanical parts including the battery. High power solutions require more frequent service of the gearbox and the gears, piston and motor – parts need to be changed more often. High power solutions require superb craftsmanship and technical skill to be made successfully.

Choice of spring

For gearboxes using a long spring, with the right ULTIMATE® parts, a short spring can do the job just as well. If an M120 solution with a long spring is wanted, use a short M140 spring with matching gears to give a more durable M120 solution.

Note that the end result of an upgrade solution might deviate +/- 10%. If an M110 solution is wanted, it might in some cases be necessary to use an M120 spring to obtain 110m/s in the final upgrade.



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Choice of battery

The battery's ability to supply effect is essential for a good upgrade. Note that the mAh written on a battery is no indication of the quality of the battery or its ability to supply the effect. The battery's ability to supply effect shows when the battery can supply a lot of amps. without the voltage (V) dropping – and this ability is important when choosing battery for an upgrade. LiPo batteries are generally well suited for upgrades as they have a greater ability to give effect compared to NiMH batteries – this is especially evident when low voltage battery packs are chosen.

For batteries used for upgrades, the capability of the battery to perform high amps without dropping in voltage (V) is required over high mAh.

Remember:

- A battery with a high indication of mAh, eg. 8,4V 3800mAh might be less suited to drive an upgrade than an 8,4V 3000mAh battery.
- The battery has an effect on the rate of fire but no effect on the power/energy (joule) of the upgrade.

Combining parts

Before combining ULTIMATE® upgrade parts with other upgrade parts, be aware of the specifications of each individual part, so you don't risk damaging the parts.

The basic design of a gearbox and its function derives from the Tokyo MARUI versions made in the 1990's. Since then, the design has been copied in part or in full by many producers of Airsoft AEG's. As there are no real benchmarks in the Airsoft business for dimensions and tolerances for the different internal AEG parts, it can at times be very challenging to upgrade an AEG using parts from different manufacturers or brands. For this reason we recommend using only ULTIMATE® parts when upgrading your AEG, thus ensuring optimal functionality, durability, and performance*

** In certain AEG's, where the gearbox does not follow the basic MARUI concept with regards to design and tolerance, ULTIMATE® parts might not work optimally – in which case you should expect adjustment of tolerances or combi-solutions with different parts in order to achieve a satisfactory upgrade.*



INFINITY Motors

INFINITY motor series have joined the ULTIMATE® Upgrade Series

The new high-performance motors in the ULTIMATE® Upgrade Series all have hand-coiled and equalised rotors that ensures optimal performance. The motors build on the latest patented technology, requiring less maintenance, longer life span and not least higher performance – abilities vital to the professional gamer and the conscientious Airsoft enthusiast.

The ULTIMATE® INFINITY motor series consists of 9 complete motors in three classes and with three different axle lengths:

INFINITY U-40000 motors are high speed/ low torque motors with short, medium and long axles (HS/LT).

INFINITY U-35000 motors are standard speed/ normal torque motors with short, medium and long axles (SS/NT).

INFINITY U-30000 motors are low speed/ high torque motors with short, medium and long axles (LS/HT).

INFINITY features:

Anti oil-absorbing function

The patented rotor design assures that no oil or grease from the gearbox is drawn into the motor, which in turn prevents carbon dust released from the motor itself to stick to the internal parts – thus minimizing the risk of short circuit created by the carbon dust.

Motor stabilizer

All motors come with motor shaft stabilizers using ball bearings. The stabilizers are designed to support the motor shaft so it can absorb the high twisting forces coming from the motor gear interacting with the bevel gear. Combined with a high tensile steel motor shaft, the risk of damaging the gears in high power upgrades is greatly reduced.

Heat emission

The rotor design creates a turbine-like pressure inside the motor when running. This not only prevents oil and dirt from entering the motor, it also generates air circulation around the rotor through an inlet hole. This feature, unique to motors, lowers the motor temperature allowing the motor to perform under higher stress without heating up and overheating. Furthermore, multiple layers of metal plates on the motor end, increase the surface of the motor – improving the overall heat emission.

Polymer back cover

The back cover of the motor is made by polymer instead of Aluminum hereby entirely removing the risk of short-circuit in this part of the motor. (Using aluminum involves a high risk of short circuiting the motor.) The INFINITY high performance motors can have this feature because of the rotor design.

Durability

The INFINITY motors offer 200.000 rounds/ shots for the rotor* without service within 6 month as long as a max. of 12 volt input is respected.

** correct service and replacement of carbon brushes and other wear parts is required to achieve a rotor life span of 200.000 rounds/ shots.*

Other features:

- Internal ball bearing support.
- Super Magnets for repeated and perfect performance.
- Oversize carbon brushes for long life performance.
- Steel pinion gear hardened to 50-55 HRC

Multiple stress tests shows that INFINITY high performance motors ranks second to none.

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INFINITY U-35000

SS/NT, short axle
Ref. 16953

SS/NT, medium axle
Ref. 16954

SS/NT, long axle
Ref. 16955

Spare parts available
for all motors!

See www.actionsportgames.com
for more details and ref. nos.

INFINITY U-30000

LS/HT, short axle
Ref. 16950

LS/HT, medium axle
Ref. 16951

LS/HT, long axle
Ref. 16952



INFINITY U-40000

HS/LT, short axle
Ref. 16956

HS/LT, medium axle
Ref. 16957

HS/LT, long axle
Ref. 16958



Test highlights	INFINITY Motors	Other brands
Pinion gear hardness in HRC	50-55	40-50
Rpm performance deviation	+/- 5%	+/- 10%
Rpm output (efficiency)	75-85%	55-70%
Temp. °C under stress	40	80
Rotor performance max 12 Volt	200.000 rounds/shots	40.000 rounds/shots

How to calculate efficiency

(in the INFINITY motors)

The INFINITY motors have been designed and built to high RPM's. U-40.000 tested under strain in a gear box with an M130 spring, a gear ratio of 19:1 and with a 11,1 LiPo battery, app. 30 shots/second can be measured. Calculated this setup will give the following rpm. under strain:

Rpm. under strain

$$= \text{ratio} * \text{seconds} * \text{burst}$$

$$= 19 * 60 * 30 = 34.200 \text{ Rpm.}$$

$$\text{Efficiency.} = (34.200/40.000) * 100\% \sim 85,5\%$$

ASCU Control unit

This is not the next MOSFET – it is the ASCU!

The ASCU offers and delivers much more than even the most sophisticated MOSFET. The ASCU II is a two piece electronic module (Control Unit and Sensor Unit), that makes every standard AEG with Marui type Ver. 2 gear-box, work exactly as the most expensive and sophisticated airsoft rifles known as Professional Training Weapons

The ASCU II system monitors the operation of the AEG at any time, and no matter how fast you tap the trigger, the AEG will always complete the full cycle, no matter if you shoot in Semi or Full Auto mode. After each shot or burst the piston will stop in its foremost position.

The ASCU automatically detects when the battery is depleted, no matter what type of battery is used.

For optimal performance, use ULTIMATE INFINITY Motors. The ASCU II requires a quality motor using strong magnets, for the active motor brake feature to be effective. Combining an INFINITY motor with the ASCU II unit, delivers a performance second-to-none.

Read more about the new ASCU (ref. 17265) on our website



Complete gearboxes

The complete gearboxes of the ULTIMATE® upgrade series has proven its popularity among gamers. To meet the gamer requirements the line of preconfigured gearboxes has been expanded to cover a line of various power solutions for version II and III gearboxes." All gearboxes come with unique serial numbers.

With an ULTIMATE® complete gearbox you can make a perfect upgrade by doing a simple gearbox-exchange so you can spend your time gaming and not building gearboxes from scratch. The gearboxes can also be reconfigured by the numerous alternative ULTIMATE® upgrade parts and/or be adapted to other AEG models.*

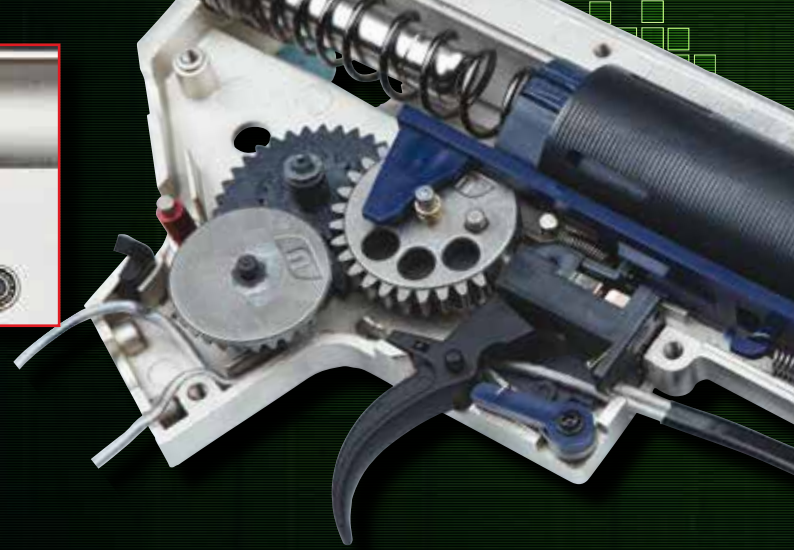
A standard AEG gearbox is produced with standard shimming of the gears and is made in large numbers with basic components to keep production costs down. This means that a standard AEG gearbox sounds more metallic and strained when used. The ULTIMATE® Upgrade Series complete gearboxes however are assembled by skilled technicians to ensure that the tolerance of the mechanical parts is balanced to minimize friction. Each technician even makes sure that every complete ULTIMATE® gearbox performs and sounds like a well-oiled piece of machinery.

**Typically an exchange of a few parts like cylinder, nozzle or trigger will be sufficient for the 4 standard gearboxes from ULTIMATE® to cover the AEG's that use version 2 gearboxes.*



Download printable versions of the exploded gearbox from the media center on www.actionsportgames.com

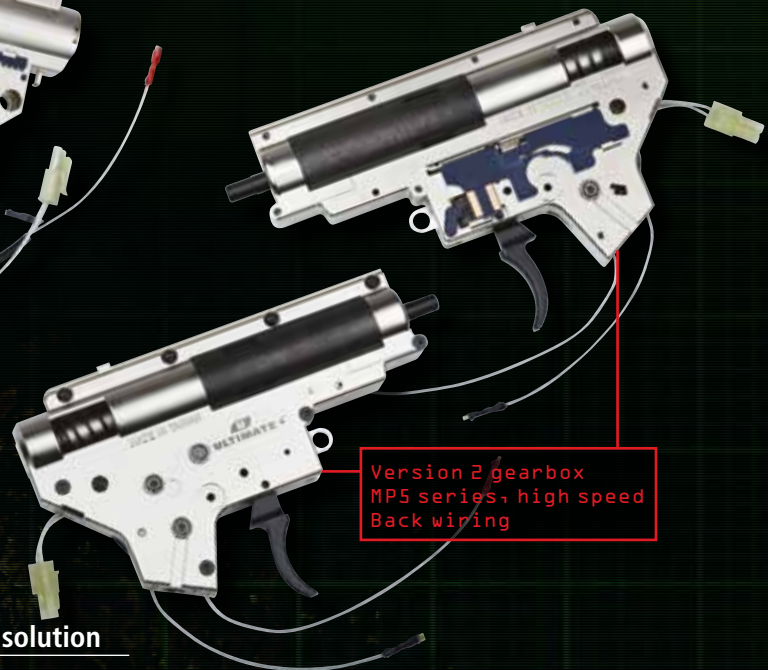
All gearboxes
have unique
serial numbers



Version 3 gearbox
AK/Arsenal, ultra torque
front wiring



Version 2 gearbox
MP5 series, high speed
Back wiring



Gearboxes, M100 solution

- Version 2 M15/M4, high speed
front wiring
Ref. 16806
- Version 2 SR16, high speed
Ref. 16807
- Version 2 MP5 series, high speed
Ref. 16808
- Version 2 G3 series, high speed
Ref. 16809
- Version 3 AK/Arsenal, high speed
Ref. 16945
- Version 3 AK/Arsenal, high speed,
front wiring
Ref. 16948

Gearboxes, M120 solution

- Version 2 M15/A4
front wiring
Ref. 16588
- Version 2 SR16
Ref. 16589
- Version 2 MP5 series
Ref. 16590
- Version 2 G3 series
Ref. 16591
- Version 3 AK/Arsenal
Ref. 16944
- Version 3 AK/Arsenal, front wiring
Ref. 16947

Gearboxes, M150 solution

- Version 2 M15/A4, ultra torque
front wiring
Ref. 16810
- Version 2 SR16, ultra torque
Ref. 16811
- Version 2 MP5 series, ultra torque
Ref. 16812
- Version 2 G3 series, ultra torque
Ref. 16813
- Version 3 AK/Arsenal, ultra torque
Ref. 16946
- Version 3 AK/Arsenal, ultra torque,
front wiring
Ref. 16949

Gearbox shells & mechanical parts

The ULTIMATE® Upgrade Series gearbox shell is cast in high-strength casting materials to ensure the box is able to endure the extra stress an upgrade will put on the box. The gearboxes are equipped with taps controlling the lining of the case preventing the box from twisting under the stress. After casting the gearbox go through a number of procedures and finishes of with a chromium plating with silver finish. The silver finish is not only a visual feature – it gives the gearbox a lower friction on the surface.

The gearbox casing comes standard with high performance pre-mounted 8mm Japanese manufactured steel bearings and ULTIMATE® selector plate (not included in version 3). Besides that a set of high strength hex-screws is supplied with the gearbox. All gearboxes come with unique serial numbers.

All other parts in this group are made of reinforced material to secure the best performance and durability.

Gearbox shell incl. bearings, version 3

Ref. 16593



Gearbox shell incl. bearings, version 2

Ref. 16592



Trigger, steel

M16 series
Ref. 16641

MP5 series
Ref. 16642

G3 series
Ref. 16643

AK series
Ref. 16644



Screw sets

New Version 2 gearbox
Ref. 17119

New Version 3 gearbox
Ref. 17120

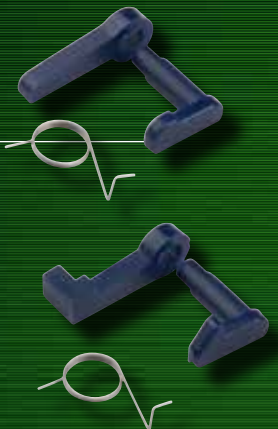


Safety cover

M16 series
Ref. 16625

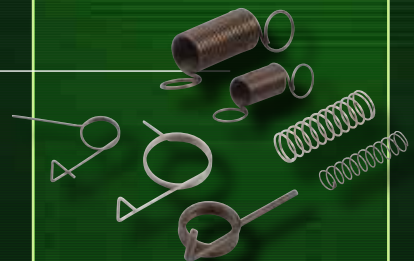
MP5/G3 series
Ref. 16626

AK series
Ref. 17160



Spring set

version 2/3 gearbox
Ref. 16638



Cut off lever

version 3 gearbox
Ref. 16628

version 2 gearbox
Ref. 16627



Springs & spring guides

The ULTIMATE® Upgrade Series doubled progressive springs make sure the torque of the motor is used to its full extent giving a higher rate of fire. All springs, with exception of the M100 spring, ref. 16669, and the M90 spring, ref. 16937, are chromium plated which minimizes the friction on the piston and serves as easy recognition based on the plating; white/black and nickel/chromium. Unlike other springs that use paint or other alternative treatment, chromium plating does not wear off leaving unwanted debris in the gearbox.

The ULTIMATE® springs are named M100, M110 etc. according to their expected tension in meters per second – measured when using a 0.20gr BB and a 300mm long barrel. In turn, an M110 spring would give 110 m/s. To convert to feet per second (fps) simply multiply by 3,28, eg.: ref. 16671 – M120 – 120ms/394fps.

ULTIMATE® spring guides has steel bearings and rotatable guide. This minimizes friction when the spring is compressed, primarily effecting the rate of fire.

The core shaft of the spring guide is made in one piece of high-strength steel to achieve 100% stability during spring compression. Furthermore the new design of the rotatable guide lowers the friction even more than in previous models.

Spring guides

Version 2 gearbox
Ref. 16612

Version 3 gearbox
Ref. 16613

Version 6/7 gearbox
Ref. 16614



Springs

M90, black
Ref. 16937

M100, black
Ref. 16669

M110, white nickel
Ref. 16670

M120, black nickel
Ref. 16671

M130, black chromium
Ref. 16796

M150, white chromium
Ref. 16672

M170, black chromium
Ref. 16673

New

M190, black
Ref. 17165

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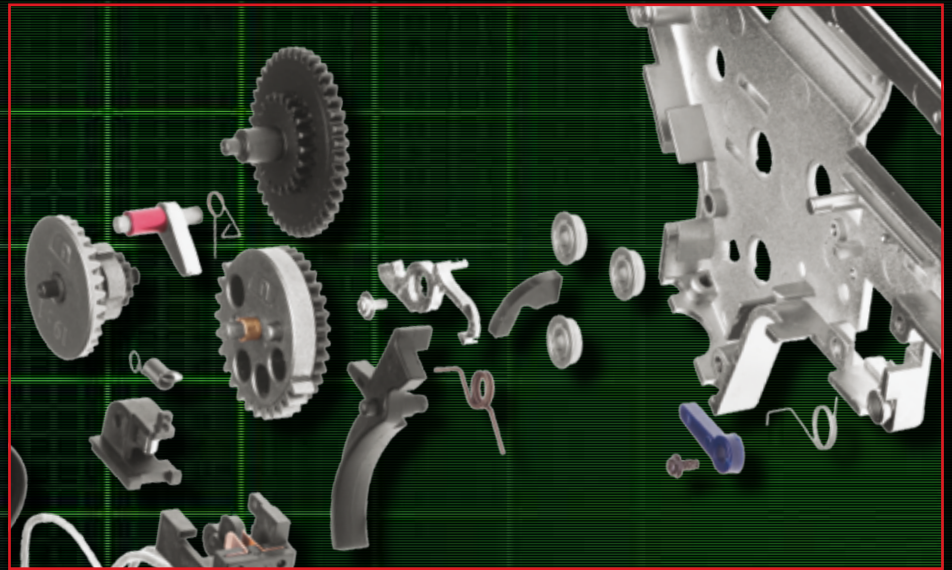
Gear sets, pistons & parts

30 years of knowledge from the automobile industry becomes visible in the ULTIMATE® gears. Major focus has been given to cover 3 critical points when producing and selecting gears for the ULTIMATE® Upgrade Series:

- Material of the highest quality. Unique mixture formulas are used to increase gear durability with as much as 35%.
- Specialized molding process used for molded parts.
- The design and construction of each gear is engineered to highest performance.

These key points allow the ULTIMATE® Upgrade Series to use only three gear ratios to power upgrade solutions between M90 and M190 springs.

Gear sector clips are used to prevent "empty shooting" and is primarily used with high-speed tunings (25+ rounds/sec.). The gear sector clip is mounted on the sector gear and delays the tappet plate (and thereby the nozzle) in its releasing time during the rotation.



Grease, gear, white colour

Ref. 17036



Gear sets

Original, 90-130 m/s,
gear ratio: 19:1

Ref. 16594

High speed, 100-130 m/s,
gear ratio: 16:1

Ref. 16595

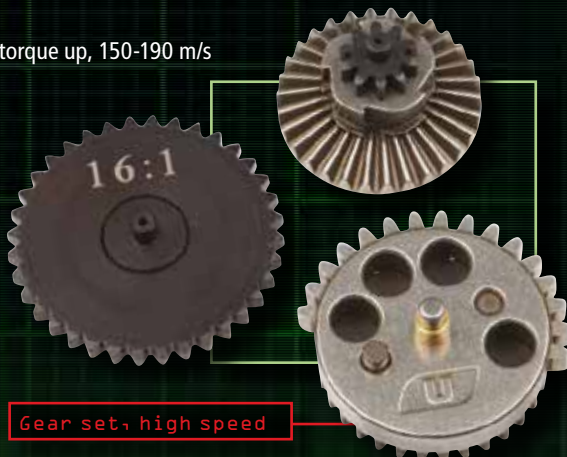
Helical, ultra torque up, 110-170 m/s,
gear ratio: 26:1

Ref. 16596

New

Helical, extreme torque up, 150-190 m/s,
gear ratio: 26:1

Ref. 16596

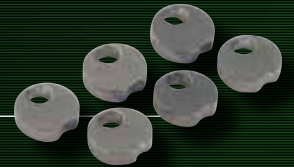


Gear set, high speed

Gear sector clips

Delay gear sector clips 6 pcs.

Ref. 16645



New

Delay gear sector clips 6 pcs.

Ref. 17159



Shim set,

10 pcs. 0,15 mm, 10 pcs. 0,3 mm

Ref. 16646

10 pcs. 0,1 mm, 10 pcs. 0,2 mm

Ref. 17106



- ULTIMATE® ball bearings are Japanese manufactured high performance steel bearings – set of 6 pcs.
- The ULTIMATE® 6mm bushings (ref. 16786) are perfectly suited for upgrading all TM-compatible gear boxes that use nylon bushings as standard. Nylon bushings are not built to withstand the increased stress from an upgrade, so it is a must that these are replaced with metal bushings or ball bearings when upgrading. As with the ULTIMATE® ball bearings, the ULTIMATE® 6mm metal bushings can be used for all types of upgrades.
- Ref. 16615, 16616 and 16617 – Best quality reversal/anti prevention latch that ensure the gears in the gearbox do not rotate backwards causing the AEG to double-fire unintentionally. Especially if a very powerful upgrade is selected this part needs to be looked after and changed regularly to secure optimal performance.
- The ULTIMATE® high performance piston are made of polycarbonate and is TM-compatible. To get the best possible strength in the piston the teeth have been upgraded with 10 heat-treated steel teeth in extension of the piston's embedded polycarbonated teething.

Furthermore the pistons' embedded teeth have a longitudinal bar where the teeth have been cast in to give them the best possible strength against breakage. The sectional view of the piston is teardrop-shaped, adding strength to the areas most vulnerable to mechanical fractures.

- The polycarbonated piston head (ref. 16608) or the aluminum piston head (ref. 16609) have both built-in pressure bearings to reduce friction from the spring. The piston heads are both ventilated where holes in the piston heads make sure that the rubber seals are pressed against the cylinder sides when the air is compressed. This gives optimal compression of the air and minimizes wear and tear on the rubber seal. The difference between the polycarbonated and aluminum piston heads lies mainly in the sound – the aluminum piston head makes a more sharp snap compared to the polycarbonated version when fired.
- The POM piston head (16610) has the same feature as the aluminium version (ref. 16609) but made in a lighter material and is intended for high-speed tunings. We do not recommend this piston for powerful tunings (m110+) as the POM material isn't able to handle the strong forces.

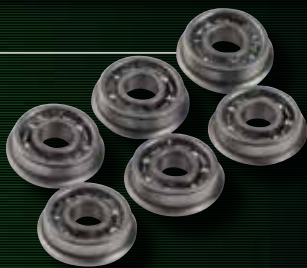
Ball bearings

8mm, 6pcs.

Ref. 16639

7mm, 6pcs.

Ref. 17128



Metal bushing, 6mm, 6pcs

Ref. 16786



Reversal prevention latch

Version 2/3, blue

Ref. 16615

Version 6, green

Ref. 16616

Version 7, red

Ref. 16617



Piston, polycarbonate

For use in Classic Army new Proline version II gearboxes, modifications are required

Ref. 16611

New

M170, polycarbonate

Ref. 17166

New

M170-M190, polycarbonate, half-teeth

Ref. 17167



Piston heads

Polycarbonate

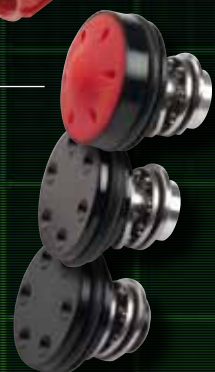
Ref. 16608

Aluminium, ventilation, hexachrome, black

Ref. 16609

Pom, ventilation

Ref. 16610



Piston head O-rings

New

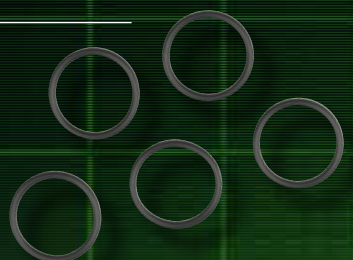
Piston head O-ring

Ref. 17162

New

Piston head O-ring, hollow

Ref. 17163



Cylinder parts

ULTIMATE®'s cylinder parts are designed to give the best possible air compression and durability. For this reason we recommend always using ULTIMATE® cylinder parts and not combining or mixing with other upgrade parts as this can affect the result and performance of the upgrade.

- The cylinders are made of steel and have been surface treated to ensure low friction and high durability. The placement and size of the decompression holes have been designed to help give maximum compression thus increasing the effect.

- All cylinder heads have been CNC manufactured in machine-aluminium and thereafter anodized with a colour code for easy recognition. The heads have been designed with double rubber seals to minimize loss of compression from the cylinder. The special 'trumpet design' ensures optimal delivery of air to the barrel/BB. Furthermore, the cylinder heads have a powerful built-in rubber band that absorbs the shock from the piston head.

A special feature for version 2 cylinder heads is the built-in rubber ring on the outer flange, resting against the gearbox. This design absorbs shocks and prevents unintended cracking of the gearbox front.

- The ULTIMATE® air nozzles have built-in rubber seals to prevent loss of compression from the nozzle. All ULTIMATE® nozzles follow TM standards.

Cylinders

G3/M16A2/AK series, 451-550mm
Ref. 16597

M4A1/SR16, 401-450mm
Ref. 16598

MP5, 301-400mm
Ref. 16599

MP5K/PDW series
Ref. 16600

M14, TM type, 451-550mm
Ref. 16601

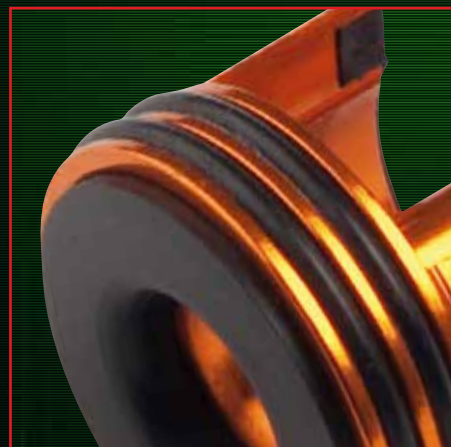
M14, TM type, 401-450mm
Ref. 16602

LMG/CA25,
Ref. 16602

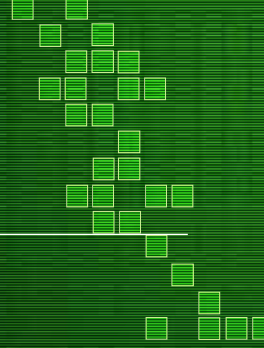


Grease, cylinder, white colour

Ref. 17094



Built-in rubber rings



Nozzles

Air, TM, M16A1/XM177/CAR15 series
Ref. 16647

Air, MP5-A4/A5/SD5/SD6 series
Ref. 16648

Air, AK series
Ref. 16649

Air, G3-A3/A4/SG-1/MC51 series
16650

Air, MP5-K/PDW series
Ref. 16651

Air, SIG-550/551/552 series
Ref. 16652

Air, G36C series
Ref. 16653

Air, AUG series
Ref. 16654

Air, M16A2/M4A1/RIS/SR16 series
Ref. 16655

Air, P90 series
Ref. 16656

Air, CA, M14 series
Ref. 16797

Air, LMG, CA25
Ref. 16816

Tappet plates

Version 2 gearbox, M16/G3 series
Ref. 16618

Version 2 gearbox, MP5 series
Ref. 16619

Version 3 gearbox
Ref. 16620



Cylinder heads

Aluminium, version 2, blue
Ref. 16603

Aluminium, version 3, purple
Ref. 16604

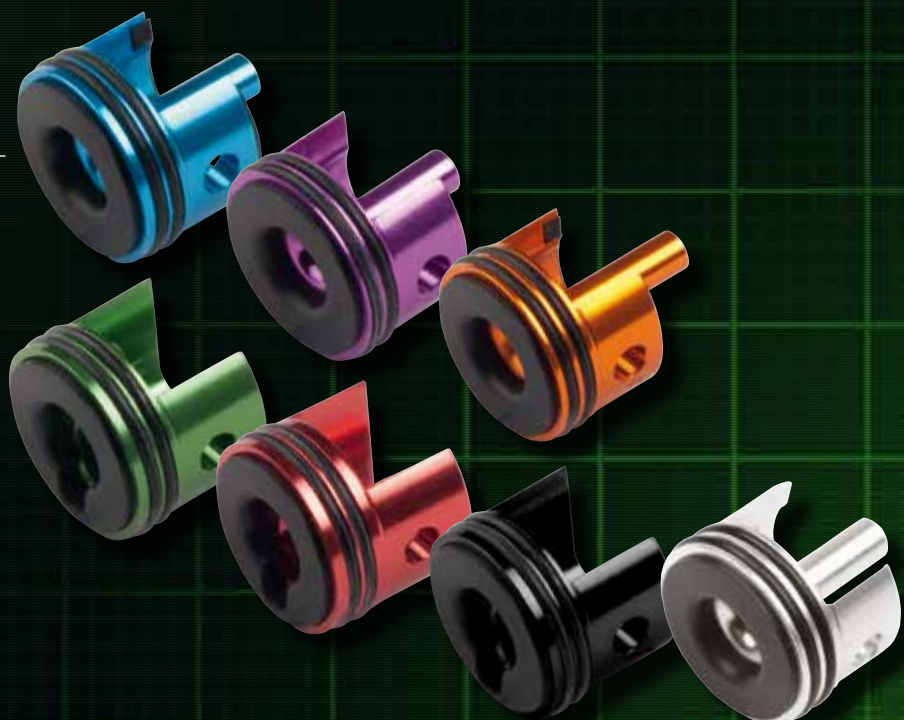
Aluminium, AUG, orange
Ref. 16605

Aluminium, version 6, hexachrome green
Ref. 16606

Aluminium, version 7, red
ref. 16607

Aluminium, version 7, hexachrome black
Ref. 16785

Aluminium, version 10, silver
Ref. 16815



Electrical parts

Any form of upgrade on an AEG places great demands on the electrical components. More amps (more effect) is pulled out of the motor thus generating more heat in the components. To comply with these factors, the ULTIMATE® Upgrade Series offers unique components that ensure minimum electric resistance (Ω) which means less heat in the parts and optimal use of the effect from the battery. To get the most out of your upgrade we recommend changing the electric components at the same time. When making powerful upgrades, it is a must that you change the electrical components.

- All electric parts are made from a heat resisting compound.
- All ULTIMATE® wires are produced in Japan, and are made of high-quality silver-wire, to ensure low resistance in ohm (Ω).
- All electrical contact surfaces have a high-quality plating to ensure low inner resistance in ohm (Ω).

Motor connector plugs

Ref. 16805



Grease, conductive paste

Ref. 17095



Ultra T-plugs, large type

Ref. 17296



Switch assemblies

Pin extractor, small
Ref. 17136

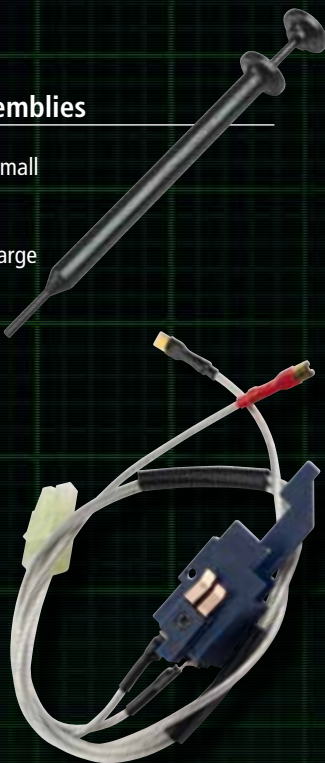
Pin extractor, large
Ref. 17137

Handguard
Ref. 16629

Buttstock
Ref. 16630

AK-47S
Ref. 16631

AK-47
Ref. 16632



Anti-heat selector plates

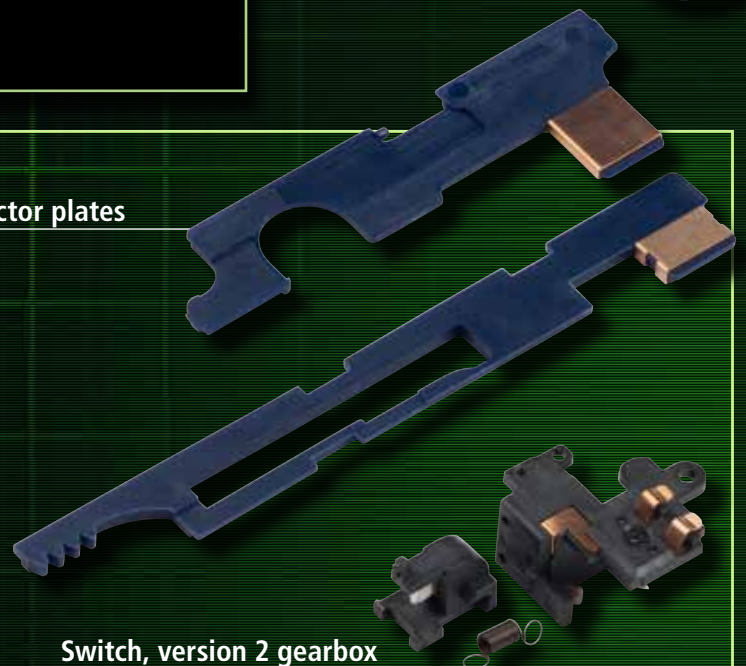
M16 series
Ref. 16621

MP5 series
Ref. 16622

G3 series
Ref. 16623

AK series
Ref. 16624

G36 series
Ref. 17101



Switch, version 2 gearbox

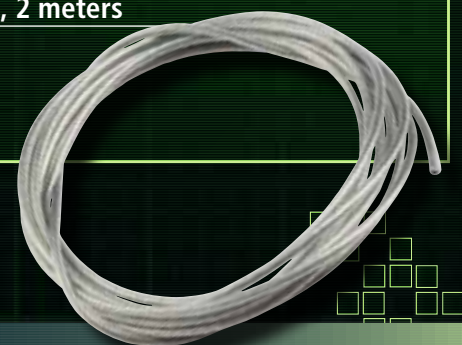
Ref. 16633

Switch, version 3 gearbox

Ref. 16634

Wire, silver plated, 2 meters

Ref. 16640



Precision barrels & parts

ULTIMATE® barrels are built to give optimal target grouping and shooting performance. The barrels are made to withstand both the tough conditions in gaming environments and to ease maintenance, making them an excellent choice in precision barrels.

- The barrels are made of high density steel ensuring that vibrations under rapid fire is reduced to an absolute minimum thus increasing the precision and grouping of the gun. Combined with the cone-shaped designed tip of the barrel, which controls the airflow around the BB when shot out of the barrel, makes the performance of these barrels outstanding.
- The 6,03mm dimension of the barrels has been chosen to warrant durability. Years of experience with Airsoft shooting and upgrades has proven that a tighter barrel bore than 6,03mm does nothing to improve BB velocity or grouping, but highly increases the risk of blocking BBs in the barrel – especially in high-speed solutions.
- The barrels have undergone special surface treatment to minimize the need for maintenance. The treatment prevents the barrel from corroding and the gathering of dirt inside the barrel.

The ULTIMATE® Hop-up chamber unit has been designed for the M15A4/M16A2/M4A1/RIS/SR16 series. In combination with the ULTIMATE® Air nozzle (Ref. 16655) the Hop-up chamber unit has practically no loss of compression.

The ULTIMATE® Hop-up rubber has been designed to give the best possible control of the BB according to the chosen upgrade. Ref. no. 16636 has a rubber hardness of 50° shore and is recommended for springs ranging from M90 to M120. Ref. no. 16637 has a rubber hardness of 70° shore and is recommended for springs ranging from M120 to M210.

Precision barrels

All barrels are made of stainless steel (SS)

6,03x229mm, MP5 series	Ref. 16657
6,03x247mm, CA36C/G36C/P90/552	Ref. 16658
6,03x285mm, Offizier M41/MC51/M6A2	Ref. 16659
6,03x300mm, DSA-58 Carbine/M15A4 URX	Ref. 16660
6,03x363mm, M15A4/A2/RIS/SCAR/CA36K,	Ref. 16661
6,03x407mm, Defender4 Carbine/vSAW	Ref. 16662
6,03x433mm, DSA-58 Rifle	Ref. 16663
6,03x455mm, AK47/AK47S	Ref. 16664
6,03x469mm, Sportmatch/M14 Scout	Ref. 16665
6,03x509mm, M15/M14/AUG/CA36/G36	Ref. 16666
6,03x550mm, M60/L86A2/FNFAL/RPK7/PSG1	Ref. 16667
6,03x650mm, SVD	Ref. 16668
6,03x715mm, VSR 25, long version	Ref. 16817
New 6,03x430mm, ASW338LM/VSR-10	Ref. 17228
New 6,03x554mm, ASW338LM/VSR-10	Ref. 17229

Hop-up chamber, AK series

Ref. 17107

Hop-up chamber, M15/M16 series

Ref. 16635

Hop-up rubber, 50 degrees

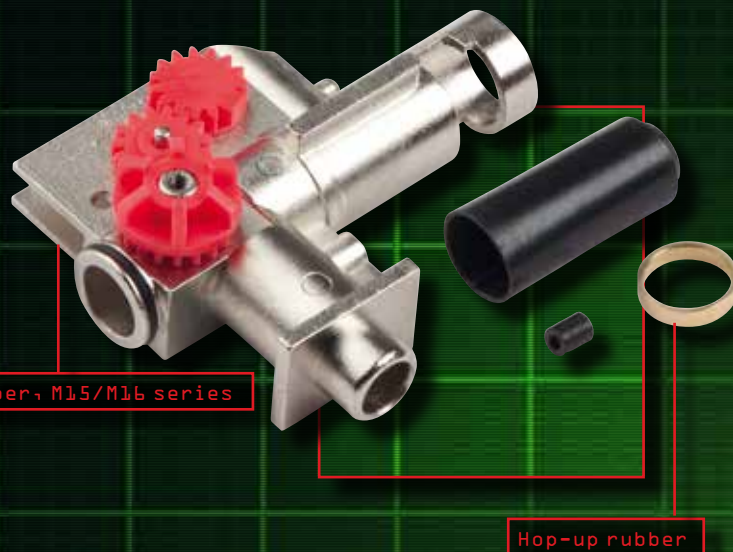
Ref. 16636

Hop-up rubber, 70 degrees

Ref. 16637

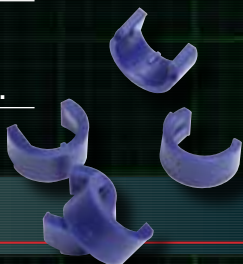
Locking clip, inner barrel 5 pcs.

Ref. 17368



Hop-up chamber, M15/M16 series

Hop-up rubber



ActionSportGames® A/S is a worldwide leader in the business of replica firearms and accessories manufacturing – including Airsoft guns, Airguns, Co2 guns, Paintball markers, toyguns and firearms replicas. We specialize in 1:1 scale replica guns and accessories for fun, action, sports, entertainment and collection. The assortment consists mainly of licensed models and exclusive subbrands of ActionSportGames® A/S.

One of our goals is to become the preferred supplier in the firearms replica business through worldwide license agreements, quality brands and premium service – before, during and after sales.



Reversal prevention latch, ver. 7

Nozzle, Air

Cylinder head aluminium, ver. 3

Gearbox, M15/M4

Ref: 16981



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