[Template:Pp-vandalism](/wiki/Template:Pp-vandalism" \o "Template:Pp-vandalism) [Template:Use mdy dates](/wiki/Template:Use_mdy_dates) [Template:Infobox weapon](/wiki/Template:Infobox_weapon)

[thumb|Modified AR-15](/wiki/File:Modified_AR-15.jpeg) The **AR-15** is a lightweight, [intermediate cartridge](/wiki/Intermediate_cartridge) magazine-fed, air-cooled rifle with a rotating lock bolt, actuated by direct impingement gas operation or long/short stroke piston operation. It has been produced in many different configurations, including semi-automatic. It employs aluminum alloys and synthetic materials.

The prototype AR-15 rifle was designed by [ArmaLite](/wiki/ArmaLite) as a [selective fire](/wiki/Selective_fire) weapon for military purposes. Armalite sold the design to [Colt](/wiki/Colt's_Manufacturing_Company) due to financial difficulties. After some modifications, the rifle eventually became the US Army's [M16 rifle](/wiki/M16_rifle).

The term "AR-15" signifies "Armalite rifle, design 15".[[1]](#cite_note-1) Today, Colt uses "AR-15" for its [semi-automatic](/wiki/Semi-automatic_firearm) civilian rifles and thus many use the term only for Colt AR-15s and clones made by other manufacturers. This article discusses the original design intended for military users and its major variants.

The [trademark](/wiki/Trademark) "AR15" or "AR-15" is registered to Colt, which requires the term to be used only to refer to their products. Other manufacturers make AR-15 clones marketed under separate designations, although [colloquially](/wiki/Colloquialism) these are sometimes referred to by the term AR-15.

AR-15 rifles are lightweight, [gas-operated](/wiki/Gas-operated_reloading), [magazine](/wiki/Magazine_(firearms))-fed and air-cooled. They fire an [intermediate cartridge](/wiki/Intermediate_cartridge) and are manufactured with extensive use of [aluminum alloys](/wiki/Aluminum_alloys) and synthetic materials. The design splits the rifle into two major components: the lower half, containing the trigger and buttstock and the upper half, which contains the bolt and barrel. This approach allows modular replacement of components. [Template:Toclimit](/wiki/Template:Toclimit)

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## History[[edit](/index.php?title=(none)&action=edit&section=1)]

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The AR-15 is based on the [7.62 mm](/wiki/7.62×51mm_NATO) [AR-10](/wiki/AR-10) designed by [Eugene Stoner](/wiki/Eugene_Stoner), Robert Fremont and [L. James Sullivan](/wiki/L._James_Sullivan) of the [Fairchild Armalite](/wiki/ArmaLite) corporation.[[2]](#cite_note-2) The AR-15 was developed as a lighter [5.56 mm](/wiki/5.56×45mm_NATO) version of the AR-10. The "AR" in all ArmaLite pattern firearms simply stands for "ArmaLite Rifle"[[3]](#cite_note-3) and can be found on most of the company's firearms: [AR-5](/wiki/Armalite_AR-5), a .22 caliber rifle; the [AR-7](/wiki/AR-7), another .22 caliber; the [AR-17](/wiki/AR-17) shotgun; the AR-10 rifle; and the [AR-24](/wiki/AR-24) pistol.[[4]](#cite_note-4) [right|thumb|1973](/wiki/File:1973_Colt_AR15_SP1.jpg) [Colt](/wiki/Colt's_Manufacturing_Company) AR-15 SP1 rifle with 'slab side' lower receiver (lacking raised boss around magazine release button) and original Colt 20-round [box magazine](/wiki/Box_magazine) In 1959, ArmaLite sold its rights to the AR-10 and AR-15 to [Colt](/wiki/Colt's_Manufacturing_Company). After a tour by Colt of the Far East, the first sale of AR-15s was made to [Malaya](/wiki/Federation_of_Malaya) on September 30, 1959. Colt manufactured their first 300 AR-15s in December 1959.[[5]](#cite_note-5) Colt marketed the AR-15 rifle to various military services around the world. After modifications (most notably the relocation of the [charging handle](/wiki/Charging_handle) from under the carrying handle to the rear of the receiver), the redesigned rifle was adopted by the United States military as the M16 rifle.

In 1963, Colt started selling the semi-automatic version of the M16 rifle as the Colt AR-15 for civilian use and the term has been used to refer to semiautomatic-only versions of the rifle since then. Colt continued to use the AR-15 trademark for its semi-automatic variants (AR-15, AR-15A2) that were marketed to civilian and law-enforcement customers. The original AR-15 was a very lightweight weapon, weighing less than 6 pounds with empty magazine. Later heavy-barrel versions of the civilian AR-15 can weigh upwards of 8.5 lb.[[6]](#cite_note-6) The 1986 [Firearm Owners Protection Act](/wiki/Firearm_Owners_Protection_Act) (FOPA) redefined the term [*machine gun*](/wiki/Machine_gun) to include individual gun components with which a semi-automatic firearm can be converted to full-automatic, based on a 1981 ATF ruling on machine gun parts.

In 1993, the bolt carrier groups used in civilian AR-15 type rifles began to employ additional measures to prevent modification to full auto.

Today, the AR-15 and its variations are manufactured by many companies and are popular among civilian shooters and law enforcement forces around the world due to their accuracy and modularity.[Template:Citation needed](/wiki/Template:Citation_needed)

## Notable features[[edit](/index.php?title=(none)&action=edit&section=2)]

Some notable features of the AR-15 include:

* Aircraft-grade forged 7075-T6 [aluminum](/wiki/Aluminum) [receiver](/wiki/Receiver_(firearms)) that is lightweight, highly corrosion-resistant and machinable.
* Modular design that allows the use of numerous accessories such as after market sights, [vertical forward grips](/wiki/Vertical_forward_grip), lighting systems, [night vision devices](/wiki/Night_vision_device), laser targeting devices, [muzzle brakes](/wiki/Muzzle_brake)/[flash hiders](/wiki/Flash_hider), sound [suppressors](/wiki/Suppressor), [bipods](/wiki/Bipod), etc. and makes repair easier.
* Straight-line stock design that eliminates the fulcrum created by traditional bent stocks, reducing muzzle climb.
* Small [caliber](/wiki/Caliber), accurate, lightweight, high-velocity round (.223/5.56×45mm)
* Support for numerous other rounds with easy conversions
* Front sight adjustable for elevation
* Rear sight that is adjustable for [windage](/wiki/Windage) (most models) and elevation (some models)
* Wide array of optical aiming devices available in addition to or as replacements of iron sights
* Stoner gas system (as designed), with short or long stroke gas piston, or direct [blowback](/wiki/Blowback_(firearms)) operating systems available
* Synthetic pistol grip and butt stock that do not swell or splinter ([regulated](/wiki/AR-15#Legal_status_in_the_United_States) in some states)
* Multiple magazine capacities, ranging from 10 to 30-round or more
* Ergonomic design that makes the charging handle, selector switch (which also engages the safety), magazine release and bolt catch assembly easy to access.
* 4 [MOA](/wiki/Minute_of_arc) accuracy or better

[thumb|AR-15 sight picture](/wiki/File:M16_rifle_correct_sight_alignment_FM_3-22.9_(23-9)_Fig_4-17.png)

## Civilian and military models[[edit](/index.php?title=(none)&action=edit&section=3)]

### Military[[edit](/index.php?title=(none)&action=edit&section=4)]

Military (automatic) variants have a three-position rotating [selective fire](/wiki/Selective_fire) switch, allowing the operator to select between three modes: safe, semi-automatic and either automatic or three-round burst, depending on model.

### Civilian[[edit](/index.php?title=(none)&action=edit&section=5)]

Civilian AR-15s support only semi-automatic (one shot per trigger pull) fire. They do not have three-round burst or automatic settings; they can only operate as a semi-automatic and are therefore not selective fire weapons.

The Colt mode switch toggles between safe (safety on) and semi-automatic modes. Some other manufacturers may mark their rifles with full automatic and three-round mode positions (for collectors and [re-enactors](/wiki/Historical_reenactment)) although these settings have no effect.

Civilian models are internally different from the M16, although nearly identical in external appearance. The hammer and trigger mechanisms are of a different design. The firing mechanism (bolt carrier and internal lower receiver) of semi-automatic versions is milled differently, so that they are not interchangeable with M16s. The design was intended to satisfy United States Bureau of Alcohol, Tobacco, Firearms and Explosives ([ATF](/wiki/Bureau_of_Alcohol,_Tobacco,_Firearms_and_Explosives)) requirements that civilian weapons not be easily convertible to full-automatic. The full automatic M16 bolt carrier is the most popular type and is approved by ATF.[Template:Clarify](/wiki/Template:Clarify)

### Modified civilian[[edit](/index.php?title=(none)&action=edit&section=6)]

Civilian models can no longer be legally modified to full automatic. In the late 1970s and early 1980s, conversion to full automatic was straightforward, using items such as the "Drop In Auto Sear" or "lightning link". In some cases such conversion required machining the lower receiver with a mill, as well as the substitution of a M16 bolt carrier group.[[7]](#cite_note-7)[[8]](#cite_note-8) Modified weapons did not thereby become able to switch between the three modes of the military model. The latter required a special full automatic fire select mechanism and a modified selector-switch.[[7]](#cite_note-7) Many AR-15's made before 1986 were converted to M16s by gunsmiths who legally, producing Form One rifles.[[9]](#cite_note-9) A converted AR has an auto sear in a lower receiver marked as an AR-15.[[9]](#cite_note-9) Today, the civilian manufacture, sale and possession of post-1986 select-fire AR-15 variants is prohibited. However, it is legal to sell templates, tooling and manuals to conduct such conversion. These items are typically marketed as "post-sample" materials for Federal Firearm Licensees. They may be used to manufacture select-fire variants of the AR-15 for sale to law enforcement, military and overseas customers.[[10]](#cite_note-10) FOPA redefined the definition of a machine gun to include individual components with which a semi-automatic firearm can be converted to full-automatic (based on a 1981 ATF ruling on machine gun parts). Since 1993, the bolt carrier groups used in AR-15 type rifles for civilians have employed additional measures to prevent modification to full auto. Colt AR-15's use a metal alloy wall to separate the fire control group from the sear, preventing use of full automatic parts.

## Operating mechanism[[edit](/index.php?title=(none)&action=edit&section=7)]

[thumb|Diagram of an](/wiki/File:M16_rifle_Firing_FM_23-9_Fig_2-7.png) [M16 rifle](/wiki/M16_rifle), firing [Template:US Patent](/wiki/Template:US_Patent) describes the cycling mechanism used in the AR-15. The bolt carrier acts as a movable cylinder and the bolt itself acts as a stationary piston. This mechanism is often called "[direct gas impingement](/wiki/Direct_impingement)" (DGI), although it differs from prior gas systems. [250px|thumb|left|direct impingement](/wiki/File:DIRECTM16.gif)

Gas is tapped from the barrel as the bullet moves past a gas port located above the rifle's front sight base. The gas expands into the port and down a gas tube, located above the barrel that runs from the front sight base into the AR-15's upper receiver. Here, the gas tube protrudes into a "gas key" (bolt carrier key), which accepts the gas and funnels it into the bolt carrier.

At this point, the bolt is locked into the barrel extension by locking lugs, so the expanding gas forces the bolt carrier backward a short distance. As the bolt carrier moves toward the butt of the gun, the bolt cam pin, riding in a slot on the bolt carrier, [forces the bolt to rotate and thus unlocks it](/wiki/Rotating_bolt) from the barrel extension. Once the bolt is fully unlocked it begins its rearward movement along with the bolt carrier. The bolt's rearward motion extracts the empty cartridge case from the chamber. As soon as the neck of the case clears the barrel extension, the bolt's spring-loaded ejector forces it out the ejection port in the side of the upper receiver.

Behind the bolt carrier is a plastic or metal buffer, which rests in line with a return spring. The buffer spring begins to push the bolt carrier and bolt back toward the chamber once it is compressed sufficiently. A groove machined into the upper receiver guides the bolt cam pin and prevents it and the bolt from rotating into a closed position. The bolt's locking lugs push a fresh round from the magazine as the bolt moves forward. The round is guided by feed ramps into the chamber. As the bolt's locking lugs move past the barrel extension, the cam pin twists into a pocket milled into the upper receiver. This twisting action follows the groove cut into the carrier and forces the bolt to twist and "lock" into the barrel extension.

## Variants[[edit](/index.php?title=(none)&action=edit&section=8)]

[Template:See also](/wiki/Template:See_also) [right|thumb|Colt AR-15 Carbine](/wiki/File:AR-15_Sporter_SP1_Carbine.JPG) The AR-15 rifle is available in a wide range of configurations from a large number of manufacturers. These configurations range from short carbine-length models with features such as adjustable length stocks and optical sights, to heavy barrel models.

### Upper receivers[[edit](/index.php?title=(none)&action=edit&section=9)]

The AR-15 employs a modular design. Thus one upper receiver can quickly and easily be substituted for another from the aftermarket. Many aftermarket upper [receivers](/wiki/Receiver_(firearms)) are available that incorporate barrels of different weights, lengths and calibers.[[11]](#cite_note-11) Available calibers include the [.223 Remington](/wiki/.223_Remington)/[5.56×45mm](/wiki/5.56×45mm_NATO), [.300 Blackout](/wiki/.300_Blackout), [7.62×39mm](/wiki/7.62×39mm), [5.45×39mm](/wiki/5.45×39mm), [.45 ACP](/wiki/.45_ACP), [5.7×28mm](/wiki/5.7×28mm), [6.5mm Grendel](/wiki/6.5mm_Grendel), [6.8mm Remington SPC](/wiki/6.8mm_Remington_SPC),[[12]](#cite_note-12)