

= FN P90 =

The FN P90 is a personal defense weapon ( PDW ) designed and manufactured by FN Herstal in Belgium . Created in response to NATO requests for a replacement for 9 × 19mm Parabellum firearms , the P90 was designed as a compact but powerful firearm for vehicle crews , operators of crew @-@ served weapons , support personnel , special forces and counter @-@ terrorist groups .

Designed by FN in conjunction with the FN Five @-@ seven pistol and FN 5 @. @ 7 × 28mm ammunition , development of the weapon began in 1986 , and production commenced in 1990 ( from which the " 90 " in its name is derived ) , whereupon the 5 @. @ 7 × 28mm ammunition was redesigned and shortened . A modified version of the P90 with a magazine adapted to use the new ammunition was introduced in 1993 , and the Five @-@ seven pistol was subsequently introduced as a companion weapon using the same 5 @. @ 7 × 28mm ammunition .

Featuring a compact bullpup design with an integrated reflex sight and fully ambidextrous controls , the P90 is an unconventional weapon with a futuristic appearance . Its design incorporates several innovations such as a unique top @-@ mounted magazine and FN 's small @-@ caliber , high @-@ velocity 5 @. @ 7 × 28mm ammunition .

The P90 is currently in service with military and police forces in over 40 nations , such as Austria , Brazil , Canada , France , Greece , India , Malaysia , Poland , and the United States . In the United States , the P90 is in use with over 200 law enforcement agencies , including the U.S. Secret Service . While developed and initially marketed as a PDW , it can also be considered a submachine gun or compact assault rifle . The standard selective fire P90 is restricted to military and law enforcement customers , but since 2005 , a semi @-@ automatic version has been offered to civilian shooters as the PS90 .

= = History = =

= = = Development = = =

The P90 and its 5 @. @ 7 × 28mm ammunition were developed by FN Herstal in response to NATO requests for a replacement for the 9 × 19mm Parabellum cartridge and associated pistols and submachine guns . NATO called for two types of weapons chambered for a new cartridge ? one a shoulder @-@ fired weapon , and the other a handheld weapon . According to NATO , these new weapons , termed personal defense weapons ( PDWs ) , were to provide " personal protection in last @-@ resort situations when the user is directly endangered by the enemy [ ... ] . " In 1989 , NATO published document D / 296 , outlining a number of preliminary specifications for these weapons :

The new cartridge was to have greater range , accuracy , and terminal performance than the 9 × 19mm cartridge . Additionally , it was to be capable of penetrating body armor .

The shoulder @-@ fired personal defense weapon was to weigh less than 3 kg ( 6 @. @ 6 lb ) , with a magazine capacity of at least 20 rounds .

The handheld personal defense weapon ( pistol ) was to weigh less than 1 kg ( 2 @. @ 2 lb ) , although a weight of 700 g ( 1 @. @ 5 lb ) was deemed desirable ; it was to have a magazine capacity of at least 20 rounds .

Both weapons were to be sufficiently compact to be carried hands @-@ free on the user 's person at all times , whether in the cab of a vehicle or the cockpit of an aircraft , and were to perform effectively in all environments and weather conditions .

FN Herstal was the first small arms manufacturer to respond to NATO 's requirement ; FN started by developing a shoulder @-@ fired personal defense weapon , the P90 , along with a small caliber , high velocity 5 @. @ 7 × 28mm cartridge type . The original 5 @. @ 7 × 28mm cartridge , called the SS90 , went into production with the P90 in 1990 . The SS90 propelled a 1 @. @ 5 g ( 23 grain ) plastic @-@ core projectile from the P90 at a muzzle velocity of roughly 850 m / s ( 2 @ , @ 800 ft / s ) . Shortly after its introduction , the P90 was adopted and used in service with the Belgian special

forces group in the 1991 Gulf War .

Following the P90 's introduction , FN revised the 5 @. @ 7 × 28mm ammunition . The new variation , designated the SS190 , used a projectile 2 @. @ 7 mm ( 0 @. @ 11 in ) shorter in length than that of the SS90 . This allowed it to be used more conveniently in the 5 @. @ 7 × 28mm FN Five @- @ seven pistol , which was under development at that time . The SS190 projectile had a greater weight , and a more conventional construction with an aluminium and steel core . The first prototypes of the SS190 were created in 1992 , and the design was finalized in 1993 , replacing the SS90 . A modified version of the P90 , with a magazine adapted to use the shortened ammunition , was then introduced in the same year . Several special cartridge variations were developed , such as the L191 tracer round and the SB193 subsonic round for use with a sound @- @ suppressed P90 .

= = = NATO evolution = = =

In 2002 and 2003 , NATO conducted a series of tests with the intention of standardizing a PDW cartridge as a replacement for the 9 × 19mm Parabellum cartridge . The tests compared the relative merits of the FN 5 @. @ 7 × 28mm cartridge and the HK 4 @. @ 6 × 30mm cartridge , which was created by German small arms manufacturer Heckler & Koch as a competitor to the 5 @. @ 7 × 28mm . The results of the NATO tests were analyzed by a group formed of experts from Canada , France , the United Kingdom , and the United States , and the group 's conclusion was that the 5 @. @ 7 × 28mm was " undoubtedly " the more efficient cartridge . However , the German delegation and others rejected the NATO recommendation that 5 @. @ 7 × 28mm be standardized , halting the standardization process indefinitely . As a result , both the 4 @. @ 6 × 30mm and 5 @. @ 7 × 28mm cartridges ( and the associated weapons ) have been independently adopted by various NATO countries , according to preference ; the P90 is currently in service with military and police forces in over 40 countries throughout the world .

= = = Present = = =

Further development of the P90 platform led to the creation of the P90 TR model , which has a MIL @- @ STD @- @ 1913 triple rail interface for mounting accessories . This model was introduced in late 1999 and continues to be offered alongside the standard P90 . More recently , the P90 has been offered to civilian shooters as the PS90 , a semi @- @ automatic carbine intended for personal protection and sporting use .

= = Design = =

The P90 is a selective fire , straight blowback @- @ operated weapon with a cyclic rate of fire of 900 RPM ( rounds per minute ) . The weapon is chambered for FN 's 5 @. @ 7 × 28mm ammunition . Its unusual shape is based on extensive ergonomic research . The weapon is grasped by means of a thumbhole in the frame that acts as a pistol grip , as well as an oversized trigger guard that acts as a foregrip for the shooter 's support hand . The P90 fires from a closed bolt for maximum accuracy , and its design makes extensive use of polymers for reduced weight and cost . Overall , the weapon is relatively lightweight , weighing 2 @. @ 5 kg ( 5 @. @ 6 lb ) empty , or 3 kg ( 6 @. @ 6 lb ) with a loaded 50 @- @ round magazine .

The P90 is notable for being fully ambidextrous ? it can be operated by right or left @- @ handed shooters with equal ease , and without making any modifications to the weapon . FN Herstal has described it as the " first fully ambidextrous individual automatic weapon . " The charging handle , magazine release and backup iron sights are symmetrically distributed on both sides of the weapon , and the firing selector is located directly at the foot of the trigger , where it can be operated from either side by the shooter 's trigger finger or support hand thumb . When fired , the P90 ejects spent cartridge casings downward through a chute located behind the grip , so spent cases are kept out of the shooter 's line of sight .

The P90 can be fitted with a sling for greater ease of carry , and since the weapon has a fixed stock

( as opposed to having a collapsing or folding stock ) , it can be quickly deployed when needed . The weapon 's smooth , rounded contours prevent it from snagging on the shooter 's clothing or equipment , and a small vertical protrusion is provided at the front end of the weapon 's frame to prevent the shooter 's hand from accidentally slipping in front of the muzzle while shooting . A hollow compartment inside the rear of the weapon 's frame ? accessed by removing the buttplate ? allows for convenient storage of a cleaning kit .

The P90 was designed to have a length no greater than a man 's shoulder width , to allow it to be easily carried and maneuvered in tight spaces , such as the inside of an armored vehicle . To achieve this , the weapon 's design uses the unconventional bullpup configuration , in which the action and magazine are located behind the trigger and alongside the shooter 's face so that there is no wasted space in the stock . The P90 's dimensions are minimized by its unique horizontally mounted feeding system , wherein the box magazine sits parallel to the barrel on top of the weapon 's frame . The weapon overall has an extremely compact profile ? it is the most compact fixed @-@ stock submachine gun to be made . The standard version of the weapon has an overall length of 500 mm ( 19 @. @ 7 in ) , a height of 210 mm ( 8 @. @ 3 in ) , and a width of 55 mm ( 2 @. @ 2 in ) .

The P90 requires minimal maintenance , and it can be disassembled quickly and easily . It is a modular firearm , consisting of four main component groups : the barrel and optical sight group , the moving parts group , the frame and trigger group , and the hammer group . The P90 's barrel is cold hammer @-@ forged and chrome @-@ lined , with an overall length of 263 mm ( 10 @. @ 4 in ) . The barrel has eight rifling grooves with a right @-@ hand twist rate of 1 : 231 mm ( 1 : 9 @. @ 1 in ) , and it is equipped with a diagonally cut flash suppressor that also acts as a recoil compensator . The stated service life of the barrel is 20 @, @ 000 rounds .

The P90 uses an internal hammer striking mechanism and a trigger mechanism with a three @-@ position rotary dial fire control selector , located at the foot of the trigger . The dial has three settings : S ? safe , 1 ? semi @-@ automatic fire , and A ? fully automatic fire . When set on A , the P90 's fire selector provides a two @-@ stage trigger operation similar to that of the Steyr AUG assault rifle ? pulling the trigger back slightly produces semi @-@ automatic fire , and pulling the trigger fully to the rear produces fully automatic fire .

= = = Ammunition = = =

Particularly significant to the design of the P90 is the small @-@ caliber , high @-@ velocity bottlenecked cartridge it uses . The 5 @. @ 7 × 28mm cartridge was created by FN Herstal in response to a NATO requirement that called for a replacement for the 9 × 19mm Parabellum cartridge , which is commonly used in pistols and submachine guns . The 5 @. @ 7 × 28mm cartridge weighs 6 @. @ 0 g ( 93 grains ) ? roughly half as much as a typical 9 × 19mm cartridge ? allowing the same number of rounds to be carried for less weight , or allowing more rounds to be carried for the same weight . Since the 5 @. @ 7 × 28mm cartridge has a relatively small diameter , an unusually high number of cartridges can be contained in a magazine . The cartridge has a loud report and produces considerable muzzle flash ( when fired from a pistol ) , but it produces roughly 30 percent less recoil than the 9 × 19mm cartridge , improving controllability . Due to its high velocity , the 5 @. @ 7 × 28mm exhibits an exceptionally flat trajectory .

One of the design intents for the standard 5 @. @ 7 × 28mm cartridge type , the SS190 , was that it have the ability to penetrate Kevlar protective vests ? such as the NATO CRISAT vest ? that will stop conventional pistol bullets . Fired from the P90 , the 5 @. @ 7 × 28mm SS190 has a muzzle velocity of roughly 716 m / s ( 2 @, @ 350 ft / s ) and is capable of penetrating the CRISAT vest at a range of 200 m ( 219 yd ) , or a Level IIIA Kevlar vest at the same range . FN states an effective range of 200 m ( 219 yd ) and a maximum range of 1 @, @ 800 m ( 1 @, @ 969 yd ) for the 5 @. @ 7 × 28mm cartridge when fired from the P90 .

In testing conducted by the Royal Canadian Mounted Police ( RCMP ) in 1999 , the SS190 fired from the P90 at a distance of 25 m ( 27 yd ) exhibited an average penetration depth of 25 cm ( 9 @. @ 85 in ) in ballistic gelatin covered with a Level II vest . The SS190 exhibited penetration depths ranging from 28 to 34 cm ( 11 to 13 @. @ 5 in ) when fired from the P90 into bare ballistic gelatin , in

tests conducted by Houston Police Department SWAT . In testing , the SS190 and similar 5 @. @ 7 × 28mm projectiles consistently turn base over point ( " tumble " ) as they pass through ballistic gelatin and other media , using the 21 @. @ 6 @- @ mm ( .85 in ) projectile length to create a larger wound cavity . However , some are skeptical of the bullet 's terminal performance , and it is a subject of debate among civilian shooters in the United States .

The 5 @. @ 7 × 28mm projectile potentially poses less risk of collateral damage than conventional pistol bullets , because the projectile design limits overpenetration , as well as risk of ricochet . The lightweight projectile loses much of its kinetic energy after traveling only 400 m ( 437 yd ) , whereas a conventional pistol bullet such as the 9 × 19mm retains significant energy beyond 800 m ( 875 yd ) , posing greater risk of collateral damage in the event of a miss . This range exceeds the engagement distances expected for the 5 @. @ 7 × 28mm cartridge 's intended applications , so the cartridge 's limited energy at long range is not considered to be disadvantageous . Since the SS190 projectile does not rely on fragmentation or the expansion of a hollow point , the cartridge ( and 5 @. @ 7 × 28mm weapons ) is considered suitable for military use under the Hague Convention of 1899 , which prohibits the use of expanding bullets in warfare .

= = = Feeding = = =

The P90 uses a unique horizontally mounted feeding system ? patented in the United States ? that contributes to the weapon 's compact profile and unusual appearance . U.S. Patent 4 @, @ 905 @, @ 394 ( " Top mounted longitudinal magazine " ) was awarded in 1990 , naming René Predazzer as the sole inventor . The detachable box magazine is mounted parallel to the P90 's barrel , fitting flush with the top of the weapon 's frame , and it contains 50 rounds of ammunition which lie in two rows facing left , offset 90 ° from the bore axis . As the cartridges are pushed back by spring pressure and arrive at the rear end of the magazine , they are fed as a single row into a spiral feed ramp and rotated 90 degrees , aligning them with the chamber . The magazine body is composed of polymer , and it is semi @- @ transparent to allow the shooter to see the amount of ammunition remaining at any time .

= = = Sights and accessories = = =

The P90 was originally equipped with the Ring Sights HC @- @ 14 @- @ 62 reflex sight , but the current weapon is instead fitted with the Ring Sights MC @- @ 10 @- @ 80 sight , which was specifically designed for it . The HC @- @ 14 @- @ 62 has a polymer housing and uses a forward @- @ aimed fiber optic collector to illuminate the white daytime reticle , which consists of a large circle of about 180 minutes of arc ( MOA ) , with a 20 MOA circle surrounding a 3 @. @ 5 MOA dot in the center . The MC @- @ 10 @- @ 80 has an anodized aluminium housing , and has a similar black reticle . The night reticle for both the HC @- @ 14 @- @ 62 and the MC @- @ 10 @- @ 80 consists of an open T that is primarily illuminated by a tritium module , and , in the HC @- @ 14 @- @ 62 , ambient light drawn in by an upward @- @ facing collector . The sight is adjustable for both windage and elevation , and it can be used in conjunction with night vision equipment . As backup in case the reflex sight is damaged , a set of fixed iron sights is provided on each side of the reflex sight housing .

The P90 has provisions for mounting a number of different types of accessories , including tactical lights and laser aiming devices . A sling can be attached to the P90 for greater ease of carry , or it can be fitted with various sound suppressors such as the Gemtech SP90 , which was designed specifically for the weapon in cooperation with FN Herstal . This stainless steel suppressor with a black oxide finish is built according to MIL @- @ SPECS , including saltwater corrosion resistance . It has a length of 184 mm ( 7 @. @ 2 in ) , a diameter of 35 mm ( 1 @. @ 4 in ) and a weight of 680 g ( 1 @. @ 5 lb ) . When subsonic ammunition is used in conjunction with the suppressor , it reduces the sound signature of the P90 by 33 dB . A small case collector pouch for the P90 is available which fits over the ejection port and collects spent cases as they are ejected downward ; the pouch will collect up to one hundred cases before filling .

= = Variants = =

= = = Military models = = =

#### P90 TR

The P90 TR ( Triple Rail ) model , also known as the " flat @-@ top , " was introduced in late 1999 . It features a receiver @-@ mounted triple MIL @-@ STD @-@ 1913 ( Picatinny ) rail interface system , or " Triple Rail , " for mounting accessories . There is one full @-@ length accessory rail integrated into the top of the receiver , and two rail stumps are included on the sides of the receiver . The top rail will accept various optical sights with no tools or additional mounting hardware required , and the side rails serve to mount secondary accessories , such as tactical lights or laser aiming devices .

#### P90 USG

The P90 USG ( United States Government ) model is similar to the standard P90 , except the reflex sight housing is aluminium , and the sight has a revised reticle . The black reticle consists of a tiny dot inside of a small ring , which is joined by three posts that glow red in low light conditions due to tritium @-@ illumination . The USG reflex sight can be removed and replaced with a special MIL @-@ STD @-@ 1913 ( Picatinny ) rail mount for attaching a different sight .

#### P90 Laserex models

The P90 LV ( Laser Visible ) and P90 IR ( InfraRed ) models , both of which were introduced in late 1995 , have an integrated laser sight manufactured by Laserex Technologies in Australia . The P90 LV model projects an 8 mW visible laser intended to be used as a low @-@ light shooting aid or for dissuasive effect , while the P90 IR model projects a 4 @-@ 5 mW infrared laser that can only be seen with night vision equipment . Both laser systems are compact , consisting of a small , flat panel integrated into the front end of the weapon 's frame .

The Laserex P90 laser systems have a weight of 131 g ( 0 @-@ 29 lb ) , and they are activated by means of a green pressure switch located on the underside of the weapon 's pistol grip . The lasers can be configured for three different internal settings : Off ? disabled to prevent accidental activation , Training ? low intensity for eye safety and extended battery life in training , or Combat ? high intensity for maximum visibility . The Laserex P90 laser systems have a battery life of 250 hours when used on the Training setting , or a life of 50 hours when used on the Combat setting .

= = = Semi @-@ automatic models = = =

The PS90 is a carbine version of the P90 , intended for civilian shooters for personal protection and sporting use ; it was introduced in 2005 , and continues to be offered in several configurations . The PS90 will accept the standard 50 @-@ round P90 magazines , but the gun is supplied with a magazine that is blocked to a capacity of 10 or 30 rounds , allowing it to be sold in jurisdictions where magazine capacities are restricted by law .

In order to be legal for purchase by civilians without obtaining a tax stamp for a Short Barreled Rifle ( SBR ) as defined by the United States National Firearms Act , the PS90 carbine has an extended 407 mm ( 16 in ) barrel and is semi @-@ automatic , with a trigger pull of approximately 31 ? 36 newtons ( 7 @-@ 0 ? 8 @-@ 1 lbf ) . The lengthened barrel has eight rifling grooves , with a right @-@ hand twist rate of 1 : 229 mm ( 1 : 9 in ) and a rifled length of 376 mm ( 14 @-@ 8 in ) ; the muzzle is equipped with a fixed " birdcage " type flash suppressor .

Despite the added barrel length , the PS90 is relatively compact and lightweight , with an overall length of 667 mm ( 26 @-@ 3 in ) , and a weight of 3 @-@ 4 kg ( 7 @-@ 5 lb ) with a fully loaded 50 @-@ round magazine . Due to the added barrel length , the PS90 can achieve a muzzle velocity of up to 777 m / s ( 2 @-@ 550 ft / s ) with SS195LF ammunition , or up to 930 m / s ( 3 @-@ 050 ft / s ) with third @-@ party ammunition .

#### PS90 Standard

The PS90 Standard is the current model of the PS90 offered by FN Herstal . It features a MIL @-@ STD @-@ 1913 ( Picatinny ) rail fitted to the top of the receiver , which allows the shooter to mount their preferred optical sight . The rail includes a set of integrated iron sights , as backup in case the primary sight is damaged . The PS90 Standard is available with either an olive drab or black frame .

#### PS90 TR

The PS90 TR is now discontinued . It featured a " Triple Rail " receiver assembly identical to that of the P90 TR . The top of the receiver consisted of an MIL @-@ STD @-@ 1913 ( Picatinny ) rail , allowing the shooter to mount his or her preferred optical sight . Two polymer side rails ? one on each side of the receiver ? were included for mounting secondary accessories , such as lasers or tactical lights . Like the PS90 Standard , the PS90 TR was available with either an olive drab or black frame . As of 2013 , the PS90 TR model is no longer listed by FNH USA .

#### PS90 USG

The PS90 USG is now discontinued . In the same fashion as the P90 USG , this model has an aluminium reflex sight housing with a revised reticle . The black reticle consists of a tiny dot inside of a small ring , which is joined by three posts that glow red in low light conditions due to tritium @-@ illumination . The USG reflex sight can be removed and replaced with a special MIL @-@ STD @-@ 1913 ( Picatinny ) rail mount for attaching a different sight , and like other models of the PS90 , the USG is available with either an olive drab or black frame . As of 2011 , the PS90 USG model is no longer listed by FNH USA , but the USG reflex sight is still offered as a standalone accessory .

= = Users = =

Despite being originally intended as a defensive weapon for military personnel whose primary role is not fighting with small arms ( such as vehicle drivers ) , most sales of the P90 have been to special forces and counter @-@ terrorist groups who use it for offensive roles . The P90 first saw operational use in the 1991 Gulf War , where it was used by the Belgian special forces group .

In 1997 , suppressed P90s were used in combat by the Peruvian special forces group ( Grupo de Fuerzas Especiales ) in Operation Chavín de Huantar , the hostage rescue siege that ended the Japanese embassy hostage crisis . The operation was a success : all 14 MRTA revolutionaries were killed , and 71 hostages were rescued . The MRTA revolutionaries who had taken the hostages were equipped with body armor , but it was defeated by the Peruvian special forces ' P90s . In 2011 , P90s were used by Muammar Gaddafi 's military forces in the 2011 Libyan civil war , and some of these examples were captured and used in the war by Libyan rebel forces .

By 2009 , the P90 was in service with military and police forces in over 40 countries . In the United States , Houston Police Department was the first local law enforcement agency to adopt the P90 , acquiring it for their SWAT team in 1999 . In 2003 , the Houston SWAT team became one of the first agencies in the country to use the weapon in a shootout . By 2009 , the P90 was in use with over 200 law enforcement agencies in the United States , including the Secret Service and Federal Protective Service . In response , the National Rifle Association added the P90 and PS90 to its NRA Tactical Police Competition standards , allowing law enforcement agencies to compete in the event using either weapon .

Military and law enforcement organizations using the P90 include :